FIRST TIME IN PAPERBACK

95c

for vitality, health, happiness...the famous natural way to

STAY YOUNG LONGER

by Linda Clark

foreword by ADELLE DAVIS
preface by BEATRICE TRUM HUNTER

FEATURING: 12-POINT GUIDE TO VITAMIN NEEDS ☐ 5 WAYS TO STOP AGING ☐ 15 DANGER SIGNS OF AGE ☐ 10-POINT GUIDE TO CHOOSING NATURAL FOODS ☐ 14 "WONDER FOODS" AND SCIENCE'S FINDINGS ☐ 11 REASONS FOR OVERWEIGHT ☐ 5 PROVEN REDUCING METHODS ☐ 5 WAYS TO TRAIN YOUR MIND ☐ 15 STRESS RELIEVERS

TX
531
C57
1968

Clark, Linda A
Stay young longer.

#1865

DATE	ISSUED TO
[illegible]	Lou Aviles
	RECEIVED AUG 0 3 1981
[illegible]	Joel Despas
[illegible]	[illegible]

#1865

TX
531
C57
1968

Clark, Linda A

Stay young longer; how to add years of enjoy
[by] Linda Clark. With foreword by Adelle Dav
Beatrice Trum Hunter. New York

364 p. 21 cm.

Includes bibliography.

1. Nutrition. 2. Hygiene. I. Title.

TX531.C57

Library of Congress [r72]rev

STAY

vital, energetic, attractive—follow the *natural* way to keep

YOUNG

in mind and body with this authoritative guide to

[illegible] LONGER

years of health and happiness!

Fact-packed and fascinating, this famous book contains the latest invaluable information YOU need—for better health, sounder nutrition, and the joy that comes with complete well-being of body and mind!

LIBRARY
NEW COLLEGE OF CALIFORNIA
[illegible] VALENCIA STREET
SAN FRANCISCO, CA 94110
[illegible]

[illegible]

#1865 gift. .35

TO BRAD
who inspired this book

STAY YOUNG LONGER

A PYRAMID BOOK
Published by arrangement with The Devin-Adair Company

Devin-Adair Company edition published May, 1961
Pyramid edition published January, 1968

Copyright © 1961 by Linda Clark

Library of Congress Catalogue Number: 61-15204

All Rights Reserved

Printed in the United States of America

PYRAMID BOOKS are published by Pyramid Publications, Inc.,
444 Madison Avenue, New York, New York 10022

Contents

Foreword by Adelle Davis 7

Preface by Beatrice Trum Hunter 9

Author's foreword to physicians 13

PART ONE

1 *How can you stay young?* 21

2 *How can correct nutrition help?* 26

3 *What makes you age?* 32

4 *How long will it take to slow down rapid aging?* 41

5 *What's wrong with us?* 49

6 *What's happened to our bread and cereal?* 58

7 *Is sugar harmful?* 67

8 *Are poisons making you old?* 77

9 *Is it safe to eat?* 87

10 *What else ages us?* 104

11 *How can you eat safely in a poisoned world?* 119

12 *What about vitamins?* 128

13 *What about minerals and enzymes?* 148

14 *What about fats and oils?* 158

15 *"Wonder foods"* 170

Page v—Pyr. N—1745—Stay Young Longer

16 *Are you a mirror of what you eat?* 197

17 *The great debate* 216

18 *How can you eat for health and youth? a summary* 235

PART TWO

19 *How can exercise help?* 255

20 *Is there hope for sagging faces and figures?* 261

21 *How can you stay slim?* 270

22 *Are you proud of your skin, nails, and hair?* 279

23 *What about menopause, prostates, and male potency?* 294

24 *How can you relieve stress?* 306

PART THREE

25 *The art of loving* 321

26 *The power of prayer* 328

27 *The will to live* 332

Appendix 345

Index 383

Foreword

As important as nutrition is, it is not the whole story behind robust health and a long, rewarding life. The best nutrition can only correct problems which have their origins in faulty nutrition. There are other factors pertaining to health which for some people may be of equal or even greater importance than nutrition. The emotions, for example, have a tremendous effect upon all the body's processes. All the phases deriving from heredity and environment which form the total human personality are complex indeed. Yet they can produce emotions and states of mind which range from healthy self-approval and a will to live, to sufficient inner conflict and personal dissatisfaction to tip the delicate balance toward self-destruction in all its myriad and often unrecognized forms.

Although we can do nothing to change our heredity, we can, with sufficient self-understanding, alter our environmental circumstances. We can create for ourselves conditions which are productive of personal happiness, expansion, and achievement.

Our physical, mental, emotional, and spiritual counterparts are so intricately interwoven that it is impossible to separate them or to deal with them as individual entities. To be truly healthy, these four facets of personality must be held in balance. Literally thousands upon thousands of times, fragmentary approaches to health have been shown to produce only fragmentary results. Unless nutritional, physical, psychological, and spiritual means are all taken into consideration, one is treating only symptoms rather than the whole person, and optimum results can never be achieved.

Unfortunately for mankind, fragmentation has today become the rule rather than the exception. Fortunately for us, however, Linda Clark has departed from this all-too-common pattern and has taken an over-all approach to the whole person. Her contribution, like her own personality, is such a harmonious one that I feel it will be helpful to all who read this book.

ADELLE DAVIS

Preface

"Old age is commonly considered a time of poor health, mental deterioration and loneliness—a time of hopelessness and helplessness. Science denies this. Recent research has changed concepts of aging as much as atomic energy has changed the outlook for industry. As people begin to practice this new knowledge, old age will cease to be dreaded and instead will become a most satisfying time of life." Thus writes David D. Stonecypher, Jr., M.D., specialist on aging.

Stay Young Longer demonstrates the truth of these words. Linda Clark, reporter and researcher in nutrition, has sifted through a mass of recent medical findings in scientific publications, and presents these findings to the reader in a lively manner. She shows how they can be applied here and now, by all readers who wish to slow down, or even reverse to some extent, the aging process.

The author explores the interrelationships of nutrition, exercise, emotions, and mental attitudes. She deals with fatigue, impotency, graying hair, wrinkles, the prostrate, menopause tensions, and a host of other problems which may *unnecessarily* accompany the aging process.

This book is filled with helpful material concerning vitamin and mineral supplements, and recent findings in this field. Which kinds for what? What are the pitfalls to avoid? What are the special values of the "wonder foods" —yogurt, blackstrap molasses, brewer's yeast, wheat germ, liver, sunflower seeds and the rest—in terms of the aging process? What about royal jelly, procaine and the recent 900-calorie, liquid reducing diets? These subjects, and many more, are discussed.

Linda Clark takes a sensible attitude toward the opinions of the experts. Where there is contradiction she maintains her objectivity and presents both sides. Where the evidence is still inconclusive, she frankly admits it.

Stay Young Longer gives documentary support to the idea that our life span in reality has not been lengthened; that degenerative diseases are on the rise; that our depleted soils yield biologically inferior foods; that environmental pollutants hasten the aging process; and that dietary deficiencies are widespread.

This book deserves to be read widely, not only by adults, but by people of all ages, since the aging process begins in little ways far earlier than most people realize. The proof offered that much of it is preventable, and even reversible, should bring a sense of help and hope to all who read.

BEATRICE TRUM HUNTER

Acknowledgments

So many people helped with the preparation of this book, that there is not sufficient space to list them. Each helped in countless ways: verifying a statement in a field in which that person was expert; contributing clippings which provided helpful clues for investigation; or supplying documentary evidence. To these many people goes my heartfelt gratitude.

The following deserve special mention for taking time from their busy professional duties to give invaluable assistance: Morton S. Biskind, M.D., Wilhelm C. Hueper, M.D., William Coda Martin, M.D., William E. Smith, M.D., and F. B. Woodford, M.D.; William A. Albrecht, Ph. D., Clive M. McCay, Ph.D.; Frances Farrelly, laboratory technician, Esther Kalis, head librarian, General Electric Management Institute. Beatrice Trum Hunter deserves a special word of thanks for her editorial assistance.

LINDA CLARK

To Physicians

This book is intended for you as well as for your patients. Your word commands respect. You are the one who must guide, supervise, and encourage to good health. Your own load must be considered too, with your overcrowded office, your insistent telephone, and only twenty-four hours a day in which to do everything.

D. T. Quigley, M.D., notes:[1] "That doctors suffer equally with the lay public in deficiency diseases is quite evident. Mortality records show that doctors die from heart and blood vessel diseases in great numbers as does the general population. The average doctor has as much pyorrhea and tooth decay as the average layman. The average doctor is as often crippled by neuritis and arthritis and has as much appendicitis, gall bladder disease, stomach ulcer and cancer as the layman. The need for educating doctors is very great."

In an interview,[2] Dr. Paul Dudley White has expressed a similar viewpoint: "We know a lot about disease, but we don't seem to pay much attention to health. This is true of doctors, too. They have gotten so much new knowledge about all kinds of diseases and such remarkable treatment for these diseases that now prevention of the disease—except for infections—has been rather neglected."

And Dr. N. Philip Norman has admitted that physicians are devoting their time and doing their best to help the sick recover, but that this has nothing to do with health. In dealing with injury and acute illness, doctors have made wonderful progress. They can relieve pain and stop most infections so quickly that little damage is evident. But actually, he stresses, physicians are dedicated to repairing or patching up a worn-out body so it will last a little longer, instead of building health and preventing illnesses, including their own.

Directing his words to his fellow physicians, Dr. Norman writes:[3] "Facilities for teaching nutrition in our schools of medicine and dentistry are practically nonexistent. Primarily these institutions are concerned with the repair mechanisms of therapy, not with prevention."

Formerly, physicians were taught differential diagnosis, applying a different treatment for each disease. In the last few years, however, it has become apparent that many diseases originate from a common source, stress. The role of stress in about 100 diseases is now recognized. Dr. Hans Selye,[4] foremost authority on stress, explains how the body runs in high gear; and how if pushed too far or too long, it ultimately breaks down. This breakdown manifests itself as different diseases in different individuals. One dramatic example cited is the case of the man who became a wheel-chair cripple with rheumatoid arthritis twenty-four hours after his wife ran off with another man.

Other stresses present themselves in different ways. Poor nutrition can produce a major stress. If the nutrition is corrected, the manifestations of stress may be lessened. For this reason, the comparatively new science of preventive nutrition is discussed in this book.

Traditionally, the medical approach to illness has been to produce an immediate response in order to overcome an acute situation. With the newer knowledge of preventive nutrition, certain physicians and researchers[5] believe that nearly all chronic degenerative diseases are basically the result of prolonged malnutrition. They further contend that a well-balanced diet of natural, properly prepared food, rich in all essentials, can prevent degenerative breakdown to a large extent, and so prevent premature aging.

Dr. Norman[3] outlines the procedures he uses for diagnostic and therapeutic treatment of his patients. "I have used this scheme successfully" he writes, "for 37 years with benefits to hundreds of patients. My most difficult task is to induce them to utilize the simple instructions provided for their meal planning." Then he adds, "In solving my clinical problems, it has been necessary to evaluate the part played by the dietary in the genesis of the chronic degenerative diseases. Clinical, hematologic and biochemical procedures will reflect the adequacy or inadequacy of an individual's dietary and pin-point the errors of omission and commission. A complete physical examination will supplement the laboratory findings. The information establishes a new perspective for the clinical nutritionist and he has a sound basis for managing the patient—therapeutically and dietetically. He is armed with sufficient data to plan the patient's nutrition constructively. In many cases this approach will reverse the deteriorative changes in the aging process; such changes frequently are overlooked by ordinary diagnostic methods."

There is a growing interest in understanding the relationship between nutrition and stress as it affects the human body and its functions. Physicians in increasing numbers are examining these relationships for answers to an ever-growing number of "vague complaints." There is a growing recognition of the role of nutritional therapy in the restoration and maintenance of good health. The New York Academy of Medicine conducted its first conference on nutrition in December, 1958.

To quote Dr. Quigley again:[1] "Everywhere one turns, people are seen who are missing the fullness of life that comes with optimum nutrition. If they could be made to realize the need for treating their past dietary errors by the use of concentrates and placing themselves on a full, rich diet, many of the nation's health problems would cease to be problems . . . Individual workers and individual universities have concentrated on individual parts of the problem. . . . The only possible correlation of all the knowledge of nutrition is in the hands of the man who is engaged in the clinical practice of medicine. . . ."

Three books are available which provide indispensable material for serious students of nutrition and health. Each one corroborates the statements I have quoted. Each book has been written by an individual who has spent a lifetime of research in his area. The findings, many of them accompanied by photographs, are documented and sobering. Pictures and text both provide eloquent testimony to the relationship of health and nutrition. The books are: *Studies in Deficiency Disease*, by Sir Robert McCarrison, M.D.,[6] *Nutrition and Physical Degeneration,* by Weston A. Price, D.D.S.,[7] *Soil Fertility and Animal Health,* by William A. Albrecht, Ph.D.[8]

Admittedly you, as a physician, have a difficult problem. While diseases which may be transmitted are evidently decreasing, degenerative diseases are on the increase. In this respect, the health of the nation is growing worse rather than improving—and the finger of responsibility is being pointed at physicians for the state of the nation's health. The increase of vague complaints leaves you less time to handle the more serious or emergency cases. In all probability you do not have adequate time to keep abreast of the avalanche of information in the professional journals.

The problem is aggravated further. There is often a time lag of up to ten years between a scientific discovery and its final appearance in print. Frequently, the traveling drug salesman is the sole source of new findings. In the field of nutritional information, discoveries are being made at such a rapid pace that dietitians trained twenty years ago are not qualified sources today unless they have somehow managed to keep up to date. Researching, as you can appreciate, is a difficult and full-time task. Several carefully trained nutritionists in the United States now serve as consultants to the medical profession. But their numbers are few.

It is for these reasons that this book has been written. It presents recent and important research, and attempts to bring you up to current findings on what has been happening in the science of nutrition (not to be confused with dietetics). It is also designed to help educate your patients. It attempts to teach them to be intelligent in cooperating with you in preventing deterioration of their bodies just as they should be intelligent about first aid or accident prevention. It is also hoped that the book will provide opportunities for teaching your patients to resist the pressures of quackery or faddism. For the benefit of your patients, the information is presented in lay language. An appendix at the end lists sources and documentation which will be of interest to serious students and professionals.

Malnutrition, of course, is not the *only* cause of premature aging. But it is an important factor, and one in which you as a physician can play a vital role. Other types of stresses will be discussed as well. It is the author's hope that this book will provide enlightenment and will lead to some improvement in national health. In reporting current research I have merely presented the evidence. Diagnosing and prescribing remain the sacred province of your profession. The final recommendations are up to you.

LINDA CLARK

Part One

1. How Can You Stay Young?

You don't have to look old, feel old, or act old. If some of the signs that advertise old age, such as aches and pains and wrinkles, and all that dreary sort of thing, have already caught up with you, there is still hope. So cheer up! In some ways you may not be as good as you were once; in other ways, you may be even better. You can't change overnight, of course, but if you really work at it you can regain the sparkle and attractiveness you never expected to see again.

But don't take my word for it. And lest you shrug off my statement as an impossibility, let's make something clear. Before we go any further, let me introduce myself. I am a researcher and a reporter. I merely find out what the experts, each in his own field, have already learned, and pass this information along to you. This is not as easy as it may sound. It means many long hours of digging in obscure, technical and hard-to-read journals. It means following a will-o'-the-wisp clue down some alley only to find a dead end or, on rare occasions, a gem. When I do find a gem of helpful information which is worth sharing with others, all the hard work and the dead ends are worth the effort. I might as well add right here that I am an independent reporter. No one has paid me to say anything in this book. What I report I have found on my own. Some of the materials I have included may anger people who would like to profit by persuading you to buy things they are selling. Be prepared for some surprises, and even a few shocks. But most important, be prepared for the truth. I am reporting the facts as I have found them, from the most reliable sources I could find.

Now if you're prepared to examine my first statement, let's get back to the subject of aging. Here is what David D. Stonecypher, Jr., M.D., a Boston specialist on aging,[1] wrote: "Most people expect their bodies to degenerate automatically with age and develop such frightening diseases as arthritis, cataracts and heart attacks. But these diseases are not caused by growing old. The damage is caused by persistent strain to an organ, or bad nutrition. *There are probably no diseases caused by growing old.* Diseases associated with old age are simply ones which require decades to develop and don't usually show up in young people. There is nothing about old age which necessitates poor health." Do you feel encouraged? You should.

Dr. Edward Henderson, a past president of the American Geriatric Society, said[2] in 1955 that the age of one hundred is a realistic and conceivable goal for which to aim. Dr. Thomas S. Gardiner, famous for his work with vitamins, reported that we haven't even approached the normal span of years. He claimed that most aging is premature. Dr. Gardiner reminded us that body organs are designed to last six or seven times as long as it usually takes the average person to reach maturity. If we apply what we already know about nutrition, he said, we could double the life span. This does not mean that we would have to add a lot of useless years to old age; it means *staying young longer*. Dr. Gardiner was one of the founders of the National Foundation for Anti-aging Research where work in the laboratory has demonstrated again and again that through nutritional practice alone longevity with more vigorous living can be achieved.

When I started to write this book, a young woman asked me about its contents. When I told her, she nodded politely. I could understand the thought running through her mind—something like "Well, that's not for me. Thank goodness I'm not yet getting old. I'm only thirty."

I said to her, "You know, aging starts around twenty-five." She looked at me incredulously, and seemed a little alarmed. We changed the subject. She would have been even more startled if she had realized the full truth. The aging process starts much earlier than most of us realize. Dr. Norman puts it this way[3]: "Today we are forming a new perspective of aging and its concomitant, degenerative diseases. We now know that the process of aging begins at conception and is progressive until death."

Nor is that the last word. Indeed, the stage is set for the aging process even earlier. The health of babies has been shown to be determined by their mothers' diet during pregnancy. In some cases, whether or not a child will have to wear glasses has been traced to what the mother ate before the child was born. Dr. John B. Saunders of the University of California School of Medicine expressed the belief that the overwhelming majority of deformities in babies are not caused by inheritance. These malformations are due, rather, to certain nutritional and metabolic agents in the mother's diet during pregnancy. Almost all such malformations observed in humans have been reproduced by dietary methods in animals.[4]

Nor is the mother's diet the sole source of responsibility. The father, too, shares responsibility. A study[5] showed that deformed children often resulted when fathers were deficient in vitamin E. Dr. E. V. Shute recommended that fathers as well as mothers should improve their nutrition, especially with vitamin E, before mating.

DO YOU LOOK OLDER THAN YOU SHOULD?

Appearance is one sign of old age which bothers more people than anything else. The first strands of gray hair and the first wrinkles terrify many. It is understandable. It threatens their ego, their physical attractiveness, and even their jobs. Frequently people will spend money which they cannot afford, and endure physical discomfort for reducing treatments, "health" machines, cosmetics, lotions, and patent medicines, with the hope of looking younger a little longer. You can't blame them. No one wants to look old, be put on the shelf and be considered a has-been. Everyone would like to stop the clock in the late thirties or early forties, and maintain the attractive ripe maturity of those years which often makes the younger generation look immature by contrast. Fully ripened fruit is more luscious than green fruit; but when it begins to wither, nobody wants it!

Yet the very thing people desire to achieve is within the grasp of most, if they only knew it. *Youth and well-being come from inside; you have to begin there. You can't look well if you don't feel well.*

It is possible to prevent, or reverse to some degree at least, the process of deterioration, provided you don't approach the problem backward. Why start on the outside of your house with paint and polish, and ignore the fact that the foundation is beginning to crumble and the walls are beginning to sag? You have to start rebuilding from the inside out! By repairing wear and tear and preventing further deterioration, you can get results which are far more rewarding than the frantic struggle to smooth over the surface of the outer shell.

HOW DO YOU FEEL?

I can remember my mother saying, "I hope as I grow older I can keep my health. You can face almost any other problem if you have good health."

This used to be a worry limited to people approaching "old age." They dreaded aging because they dreaded the thought of poor health, which seemed its inevitable accompaniment. Surprisingly, that dread is no longer confined to aging people. I came across a newspaper article which reported[6]: "The almost unanimous New Year's wish for 1959 is for good health. Men and women interviewed at random on New York City streets disclosed this common basic concern when asked the question, 'What do you want the New Year to bring you?' The answers of all but one person showed that the usual hopes were those for prosperity, peace and happiness and while frequent and important—varied according to the individual. But the wish for good health was almost universal. Everybody wanted it."

Many people of all ages feel only half well these days. In terms of a visual representation, if health is white, disease black, and all inbetween states are varying shades of gray, grayness is the state in which so many people find themselves today.

A research report on aging, reported by the Royal Bank of Canada,[7] phrased the problem this way: "So far as health goes, the remedy is simple: stop thinking of ills as merely applying a temporary patch to a worn fabric, and think positively of how to keep that fabric in shape for a long and comfortable use. A man of 65 may be as vital as the average man of 40 and may show no sign of old age except the accumulation of wisdom."

Now we are beginning to get to the heart of the matter. If you want to retain your youth longer, you have to retain your health. This youth-health combination is not as elusive as you might think. Scientists have learned a good many of the secrets already. You will read about many of them in this book which you can begin practicing immediately.

If staying young depends on staying well, it may raise some questions in your mind. Do you have to endure pain to get well? The answer is, no. Do you have to worry about it? No. Can you do it yourself with the right help and the proper tools? Yes. How do you go about it? Simply remember that health is a many-sided affair. There is physical health, mental health, emotional health, social health and spiritual health. Radiant, total health means health in all these areas. Total health also implies the *absence of disease* in any of these areas. It is a positive rather than a negative condition.

The American Medical Association Committee on Aging outlines a do-it-yourself check list[8] of how to live longer and better. The list was designed by Dr. Edward L. Bortz of Philadelphia, a member of the Committee. It consists of these basic needs for older persons:

1. A balanced diet including more protein, vitamins, and fluids; fewer fats and calories
2. Regular elimination of waste products
3. Adequate rest of both mind and body
4. Pursuit of interesting and specific recreational activities
5. A sense of humor (the best antidote for tension, Dr. Bortz said)
6. Avoidance of excessive emotional tension that leads to personal ineffectiveness
7. Mutual loyalty of friends and family
8. Pride in a job
9. Participation in community affairs
10. Continued expansion of knowledge, wisdom, and experience

The Committee reported that the major scourges of aging man are largely the result of faulty diet, bodies which have been allowed to become flabby from poor hygiene, excessive fatigue, and aimless living. "The two major elements in prolonging life are the preservation of energy and a high degree of motivation." When the incentive, the zest for living, is lost, senility is inevitable," Dr. Bortz explained.

There is evidence that worry kills more people than work. Usually nobody dies of work he enjoys. Certain occupations may actually lengthen the life span. Life insurance statistics[9] show, for example, that deep-sea fishermen live longest; watchmakers are next. The common element of these two occupations is that the worker has little occupational cause for worry.

Joe D. Nichols, M.D., wrote[10]: "There are six chief causes of disease. 1. Emotional 2. Nutritional 3. Poisons 4. Infections 5. Accidents 6. Inherited. The greatest cause of disease, without doubt, is emotional. Worry, fear, anxiety, hate, envy, and jealousy—these are the great killers."

We will explore some of the causes on Dr. Nichols' list later in the book. Since the fastest route to health is via nutrition, let's explore it first, in the chapters that follow.

2. How Can Correct Nutrition Help?

I was waiting my turn in a drugstore, when I heard the woman in front of me give an unusual order, "A gallon of that Norwegian-type cod-liver oil, two bottles of regular cod-liver oil, and the largest bottle of calcium-phosphorus powder you have in stock."

This woman certainly seemed to know about the benefits obtainable from special nutritional items; I was curious to get a glimpse of her. People who are radiantly healthy usually look buoyant and young. Also, I was eager to know more about that Norwegian cod-liver oil. I was unable to restrain myself any longer, and blurted out,

"Do you find the Norwegian oil especially helpful?"[1]

"Yes, it's fine," she said as she turned around to face me. I was horrified. She was an apparition. Her face was drawn, sallow-yellow, and lined with wrinkles. Her hair was dirt-gray, dry and brittle enough to snap off between the fingers. I realized that she was too tired to stand up straight, and that every word she uttered seemed to be an effort.

"Do you take the cod-liver oil?" I ventured, although I was certain she didn't. If she did, she couldn't have looked the way she did.

"Oh, no," she answered, surprised. "I feed all this," waving her hand toward her order, "to my dogs."

On the way home I pondered her problem. I knew without asking that her dogs were sleek and glossy. Scientific knowledge has been used to feed animals in order to keep them healthy, beautiful, and young beyond their years. In fact, the first question the owner of any prize race horse or show dog asks if his animal becomes listless, droopy, ill, or displays a poor coat, is, "*What is he eating?*"

Alfred McCann[2] reported that he could take two laboratory animals which were brothers, and produce robust health in one, and signs of old age in the other, merely by changing their diet.

At Wild Animals, Inc., Ocala, Florida,[3] a valuable leopard was ill with paralysis. All treatments had failed. George Tyner, a nutritionist, supplied the dying animal with a high dosage of a natural food concentrate consisting of seventeen trace minerals, multiple vitamins, and dehydrated bone. In nine days the leopard improved 75 per cent. Instead of a dead animal being buried, a live animal was sold at a profit. The same vitamin-mineral concentrate helped several sick monkeys of various breeds to recover just as rapidly.

Clive McCay of Cornell University, wrote[4]: "Thirty years ago we became convinced that the disease of old age in experimental animals such as white rats could be changed by the control of the diet . . . Dietary changes could be introduced in middle life when common chronic diseases are well started; such factors as reduction of body fat would modify the terminal diseases and extend the length of life . . . We know that the most effective control of the diseases of later life must begin early, but that the latter half of life may be influenced even when dietary changes are introduced in middle life."

If it is possible to get such results with animals, can people be helped too? The answer is yes, as you will learn in detail later. What does this have to do with old age? Simply this—biochemists have decided that aging is nothing more than *malnutrition* which leads to accumulated damage to, or the starvation of, tissues and organs. It is a shocking fact that so many Americans, though they often overeat, suffer from malnutrition. In fact, overeating in itself may be an indication of malnutrition. People may be eating only what they *like*, instead of what their bodies *need*. Most people eat three meals a day and consider themselves well-nourished. Actually, their bodies may be starving for nutritionally needed foods.

There is a prevalent notion that our American diet contains all the necessary food factors in adequate amounts. But this is not substantiated by analysis. To the contrary, the Medical Geographical Society reported[5] that although enough food is produced in the world, two-thirds of the human race suffers from a deficient diet. This same two-thirds subsists on diets lacking in both energy and protective values, or in tissue-repairing factors. Empty calories which may taste good but merely fill you up without building you up may lead at first to a single deficiency, then multiple deficiencies, and finally to those diseases commonly known as "old age."

Recently a drug firm, which manufactures vitamins and minerals, used a clever advertising stunt. They sent out some empty brown bags to their customers. Each bag bore a tag that read, "This empty bag contains the amount of nutrition found in the average sack of groceries purchased today."

Few people in this country sit down to a meal that is in any way as nutritious as a can of dog food. Have you read a dog-food label recently? How does it compare with the vitamin-mineral content of your own food? Here is a list of ingredients taken from a label of a typical commercial dog-food preparation:

Meat By-products
Soybean Grits
Cracked Milo
Pearled Barley
Cod-liver Oil
Brewer's Dried Yeast
Water—sufficient for processing
Edible bone
Hearts
Salt
Dehydrated Carrots
Irradiated Yeast
Sodium Nitrite

Note them well. We are going to talk about some of these ingredients later.

I propose a novel experiment: Feed humans one of the better dog-food preparations over a period of time, and I'll wager that they will look and feel wonderful! You may chuckle over this suggestion, but someone has already worked along similar lines with some success. Chicken feed has already been tried on children. Dr. Robert L. Squibb, Chairman of the Poultry Department at Rutgers University, who accompanied Dr. Nevin Scrimshaw to Guatemala's Institute of Nutrition, noticed that many Guatemalan children suffered from swollen abdomens, poor development, lack of energy, and had skin which was blackened and covered with open sores—because of their insufficient and starchy diet.

Dr. Squibb remarked that his chickens in New Jersey were better fed than those children in Guatemala. This gave Dr. Scrimshaw an idea. Why not try one of Dr. Squibb's poultry-feed combinations on the underfed children? Together the men chose a nutritious mixture used for baby chicks. They changed it slightly to make it more palatable. Under the supervision of a pediatrician, the mixture was fed to a group of Guatemalan children. The ration contained 50 per cent lime-treated corn meal, 35 per cent high-protein sesame seed, 9 per cent cottonseed meal, 3 per cent kikkuyu grass (for Vitamin A), and 3 per cent non-fermenting yeast. All of these ingredients happen to be inexpensive and readily available in Central America. The combination is now known as "Mixture Eight."

Dr. Scrimshaw reported the result of the experiment:[6] "After three weeks, the swelling and the sores were gone. The kids were putting on weight. After eight weeks they were the healthiest they had ever been in their lives."

This study suggested further experimentation along similar lines. A new, inexpensive health food was developed called "Incaparina," composed of corn flour, sorghum, cottonseed, brewer's yeast, and vitamin A. Early in 1960 it went on sale in forty Guatemalan cities. An American physician visiting Guatemala found "Incaparina" advertised American-fashion—"For more vigor and stronger muscles—eat Incaparina!"

THE HUMAN BODY IS REPLACED EVERY YEAR

We know now, as a result of extensive chemical analysis, what food elements the body requires to keep it functioning well. Dr. Paul G. Aebersold of the Atomic Energy Commission has watched what happens when elements are introduced into the body and begin the rebuilding process. This was observed with the help of radioactive tracers. Dr. Aebersold remarked:[7] "Your body may seem much the same to you as it was a year ago, plus or minus a few pounds or inches, but . . . In a single year 98% of the old atoms will be replaced by the new atoms which we take into our bodies from the air we breathe, the food we eat, and the water we drink."

Professor Oscar E. Schotte[8] of Amherst College claims that the body possesses a seed of perpetual life which keeps the body in constant repair provided it is fed the proper elements. According to Dr. Schotte, with the exception of the brain and the central nervous system, every cell of our bodies can be rebuilt every seven years. The elements the body needs are also found in various foods which, if not tampered with, can serve as the best possible source of those body-building elements. These chemicals are known to you as vitamins and minerals, plus a newer one, enzymes. They are contained in, or extracted from, food.

Now it may be understood that food is more than mere food. Certain foods with a rich supply of vitamins, minerals, and enzymes are valuable for keeping the body in constant repair. "Empty" foods cannot do this. Food should be considered more important than just something to eat. Yet eating should not be a chore. Nor is it a question of dieting. You must, rather, learn to substitute proper foods which have value for foods which are merely "filler-uppers" and do harm. This may mean that you may have to change a few old habits. But I assure you that healthful eating can also be pleasant eating. It doesn't mean living exclusively on "rabbit food" either. For those of you who enjoy eating, and I number myself among you, correct eating can be gourmet eating! Dr. Albert Szent-Gyori, a Nobel prize winner, predicted that the time will come when people will be less anxious to be gourmets, and will eat to support their body chemistry. I don't believe that there is necessarily a conflict. I maintain that both are possible. Correct eating can be fun, and good tasting too.

Obviously, even good nutrition has its limitations. It cannot guarantee perfect health if there are disturbances due to other causes. It cannot change the basic structure of the body once it is built, or restore a missing part once it is lost. But the efficiency of the body can be improved by correct eating. You may not be able to change the shape of your nose or your frame through nutrition, but you can certainly improve on the upholstery.

It is true that faddists seem to have associated themselves with nutrition to a greater extent than with any other branch of health. There are those extremists who never touch an egg; others who won't eat cucumbers. Probably these fanatics will always be with us. It is also possible that some foods don't agree with some people. These people may try to discourage you from eating the foods they can't eat. Misery loves company.

The best way to separate scientific information from quack information is to remember that one case is not sufficient proof. Before you accept any information about health or nutrition, ask the person who is making the claim to describe the research which supports the claim—Where was the research done? By whom? How was it controlled? Where is it reported so that you can check further details? Scientists and physicians spend years, even lifetimes, checking on facts before they report to the public.

A wise rule to follow is to maintain a healthy skepticism. Don't accept anything which is mere hearsay. Articles in popular magazines should be carefully evaluated. Are the sources reliable? Was the study conducted by a person who has a reputation for integrity? Was the information checked, the test used on a great many people for an adequate time, or with animals under proper conditions? A study which is trustworthy should tell you the *whole* truth, presenting a fair account of the negative as well as positive evidence. Don't be gullible just because you want to believe the information.

3. What Makes You Age?

Laura, a dear friend whom I had known for many years, suddenly began to suffer from a host of ailments. Everything seemed to descend upon her at once: a wound that refused to heal; a congestive heart disturbance which was traced to thyroid trouble. Her ailments caused her suffering, an extended stay in the hospital, and a draining bank account. Her family and friends stood by helplessly, wondering why it had to happen to Laura. She was such a wonderful person. Was it because she was growing old?

Knowing Laura's history I knew there was no mystery about her deterioration. I thought of the phrase, "You cannot keep making withdrawals from your body's bank account without deposits to cover them." I knew that Laura's deterioration was *not* sudden, and that it probably could have been avoided. It was true that her body was literally beginning to fall apart, but the breakdown had been in the making for a long, long time.

NUTRITIONAL TIME BOMB

Carlton Fredericks, Ph.D., biochemist and nutritionist, has been well known for many years for his radio program. His listening audience already numbers over 125,000, and is increasing as his helpful program extends to new regions in the United States.

He has been an associate professor of nutrition at Fairleigh Dickinson University. Because he has had the courage to denounce manufacturers of worthless foods, at times he has been considered a controversial figure. However, his programs are well-documented and have earned the respect of many physicians and nutritionists. I personally know doctors who successfully follow and use reports of his medical-nutritional research.

He outlines the steps in the body's nutritional breakdown:

1 Due to inadequate nutrition (either because of poor diet or poor assimilation) a series of stages of deficiency develop.
2 This sequence is initiated in the blood. When the supply of nutrient in the blood begins to drop, tissue reserves are drawn upon. When these are exhausted, organ reserves of the nutrient are withdrawn. At this point, dysfunction may start—vague or significant symptoms which unfortunately are not likely to be recognized as evidence of nutritional deficiency. Next will come microscopic changes in the tissues, and finally macroscopic changes (visible to the naked eye) in the tissues.
3 Prior to emergence of the overt symptoms—the macroscopic change in the tissue, the bleeding of gums, the neuritis, the permanently goose-pimpled skin—please note that nothing which is happening will be clearly indicative of the toll of poor diet or poor utilization. Yet, even during the period when the changes are visible only under the microscope, resistance to infection is dropping, the ability to bear stress is impaired, morale is lost, and subtle and undesirable changes in the personality appear. This process can, of course, remain indefinitely arrested at this stage. Its toll may be premature aging—or if an unbearable stress is encountered, even sickness or death. When some of the visible tolls do appear, the relationship to nutrition will obviously be recognized. Instead, the sufferer is likely to say; 'Why did this have to happen to me? I must be getting old.'

The entire process is often called "The Nutritional Time Bomb" because it is set early and explodes later. This sequence is illustrated by what happened to Laura. The slow, unnoticed outward symptoms of deterioration did not show up until every organ had robbed Peter to pay Paul.

There are other examples of this which might be cited. Diabetes is said to begin five years before a patient recognizes it. Broken bones, so common among old people, represent calcium shortages which finally show. Physicians tell us that an elderly person frequently does not break an arm or a leg or a hip because he falls. He falls because a bone snaps first.

Sol Hirsch, M.D.[1] wrote that doctors' offices are crowded with people with vague complaints. The usual tests show that "nothing is really wrong." The patient returns home, cheered up, only to return later with a different symptom. "Despite the wide variety of their complaints . . . there is a common denominator. . . . It is a depletion of energy up to or beyond the body's ability to spring back." In other words, the patient has lost his bounce. His deficiencies have reached the halfway mark, or stage 2 in Dr. Frederick's list, but there is nothing "really wrong with him."

AGING IN ANIMALS ALSO GIVES CLUES

Observation of animals has also contributed to our understanding of the aging process. Take the case of a milk goat, which often dies at an early age. A veterinarian who imports goats told me that as long as the necessary minerals are supplied in the goat's diet, no trouble develops. But if the diet is inadequate what happens? Does the deficiency show up in the milk or in the goat? At first, the milk quality remains high. The goat pays the price. As the minerals are denied her in her food, she draws from her own body. Calcium is literally pulled out of her bones to maintain the proper calcium level in the milk. If this situation is allowed to continue, the goat's reserves finally become so depleted that she dies. The veterinarian added that this condition can be avoided by feeding milking goats the necessary vitamins and minerals in addition to a good diet. As I listened to this account, I recalled the old saying about a woman during pregnancy, "A tooth for every child." We know better these days. Now pregnant women are urged to take calcium supplements.[2]

Observation of cows likewise has added to our knowledge of the aging process. The pattern of a gradual breakdown of a cow is similar. Fed on an inadequate diet, the high quality of the cow's milk can be maintained for a while, but not indefinitely. When her diet continues to fail in providing her with the necessary elements, she too, draws upon her own body reserves. Pottenger, Albrecht and Allison[3] have shown that cows lack resistance to undulant fever if they fail to receive proper nutritional elements in their diets.

SOME TELLTALE SIGNS OF DEFICIENCY OR "AGING"

The following symptoms are observable at any age, on any street corner, in any town or city in America. They have all been traced to malnutrition.[4]

Body

Undersize, underweight, emaciated, or
Overweight, but flabby with soft flesh.
Fatty deposits in the wrong places.
Muscles flabby and drooping. If skin is pinched, it takes a while to return to normal.
Posture, known as fatigue posture: head thrust forward, chest flat and narrow; shoulders round, abdomen protruding.
Awkward co-ordination.
Dragging of feet, walking with difficulty.

Skin

Loose and pale, or waxy and sallow. Premature wrinkling, rough and dry.
Permanent goose pimples.
Cracks in corners of mouth.
Nails break easily.

Facial Expression

Drawn, worried. Or, sometimes an overanimated expression coupled with an appearance of strain.

Eyes and Lips

Enlargement of blood vessels of eyes.
Mucous membranes thin and tightly stretched.
Crusting or redness around eyes.
Granulated eyelids.
Eyes watering or flinching at bright light.
Dark hollows or blue circles beneath eyes.
Eyes dull, tired, burning.

Tongue

Burning or cracks.
Beefy, coated, with grooves, fiery red tip, or shiny.
Gums bleeding, mushy, teeth poor or missing or decayed.
Sore mouth.

Hair

Gray or fading.
Dry, brittle, hard to manage, coarse, lusterless.
Dandruff
Falling hair.

Digestion

Poor, finicky appetite, disturbed by many foods.
Constipation, gas.
Nervous indigestion.
Gastric ulcers.

General Feelings

Irritable.
Overactive, or the other extreme: lethargic depressed, unable to concentrate.
Fatigue.
Restlessness.
Dizziness.
Confusion.
General Weakness.
Insomnia.
Low resistance to infection.
Soreness of joints.
Delayed or poor healing of wounds.
Superficial hemorrhages of gums, nose, mouth.
Poor endurance, lack of vigor, always tired and dopey, moody and hard to get along with.
Poor memory.
Hands tremble.
Sensitivity to cold weather.
Headaches.
Unnecessary worry about things which never happen.
Leg cramps at night.
Nervousness, constant quarreling.

IS A GOOD DIET ALONE ENOUGH?

Is it true, as some people say, that you can get everything you need from a good diet? For many reasons, which will be discussed later, the evidence seems to point to a loud, resounding *No*. In our grandparents' days, yes, but unfortunately not today. In the 1900's and earlier, people ate approximately 3500 calories daily. They did much physical work. Today, the average person finds he can eat only about one-third of that amount, or 1500 calories, otherwise he gains weight. The sensible solution seems to be to eat less but include certain foods which have extremely high vitamin-mineral content, and to add vitamin-mineral supplements.

Regarding supplements, a physician member of the New York Academy of Medicine wrote: "Today we ride so much and sit so much we can use only about 1800 calories without getting fat. Thus we are eating only half the amount of vitamins and minerals consumed by our forefathers. What we do eat is of poorer quality, due to worn-out soil, and overrefining of foods. The only way I, for one, can get the necessary nutrients and still maintain my proper weight, is to take some of them in supplement form."

Another discussion of the need for supplementation appeared in an article:[5] "There is no sensible reason at all why vitamin and mineral rich foods should not be available to all of us at a price we can afford . . . When the day comes that we can buy, in this country, freshly picked fruits and vegetables—and we mean picked the very day we buy them—freshly ground cereal products—and we mean the very day we buy them—really fresh meat that has not been doctored with all kinds of preservatives, flavorings and chemical 'improvers'—when that day comes, no one who pays any attention at all to good diet will have to take food supplements, for he will be able to get his full quota of vitamins and minerals in his daily food."

ARE "REJUVENATION METHODS" RELIABLE?

From time to time various rejuvenating methods are given wide spread, dramatic publicity. The following are some recent reports. Certainly you will wish to read about them, and be acquainted with them as they are given further coverage in the future.

Dr. Paul Niehans injects a mixture of cells from glands of freshly slaughtered animals into people. A Heidelberg study, employing the use of a Geiger counter, has confirmed Dr. Niehans' theory that liver cells injected into the body proceed directly toward the liver, pancreas cells toward the pancreas, and so on.

According to one writer[6] Dr. Niehans treats each affected human organ with injections of a corresponding animal organ. It is alleged that Dr. Niehans has helped, among others, the late Pope Pius XII, Adenauer, and Churchill. However, there are also reports of failures, abscesses at the site of injection, and even death in some cases following the treatment.

Geoffrey Bocca,[7] a reporter, visited Dr. Niehans' clinic and discussed these failures with Dr. Niehans. In Dr. Niehans' opinion, the failures are due not to the fresh cells, but in rare cases, to improper administration of the cell therapy. The failures may not damn the method, but faulty technique. Bocca also mentions the expense of the treatment. Cost for a single injection at the Niehans Clinic is rarely less than one thousand dollars. In some cases, many injections are deemed necessary. According to Bocca, Dr. Niehans is fond of saying, "I do not rejuvenate,—I revitalize." Dr. Heinz Woltereck,[8] another investigator, corroborates this statement: the Niehans fresh-cell therapy does not rejuvenate; it merely improves health by treating certain diseases.

Actually, there may be an easier, safer, and less expensive method of accomplishing similar results. Adelle Davis reported[9] a study of the value of eating organ meats: "The health of the vital organs may be far better maintained by (eating) carefully chosen proteins. In an experiment, a number of children were given brain daily over a five year period starting in infancy. They were allowed no other meat. When they entered school it was found that each ranked in the genius class and that the group had the highest intelligence quotients ever recorded in the school they attended. Although the number of children was too small to be statistically significant, the experiment quite possibly indicates that *the health of the* *human liver can best be maintained by eating liver, brain by eating brain, and kidneys by eating kidneys.*" (emphasis mine)

Still another "rejuvenation" method much discussed is H_3. The treatment consists of injections of novocaine, which is a trade name for procaine. H_3, or procaine, combines para-aminobenzoic acid, a B vitamin, with another factor, diethylaminoethanol. Dr. Anna Aslan of Bucharest, described procaine a "rediscovery." It was previously used for thirty years by Dr. Walter Hunecke of Stuttgart, Germany. Dr. Aslan has used it to treat aged people. She has claimed that it regenerates sufferers of many degenerative diseases, restores vigor, and even recolors gray hair.

Many physicians have been critical about the use of procaine because of disturbing side effects. However, Dr. Aslan stated that she modified or "buffered" the plain procaine. She produced a special formula which is available to physicians under the trade names of Gerioptil, Gerovital, etc; Dr. Aslan's studies showed that, in this special formulation, procaine is toxic only to a very minute number of cases.

Henry Marx, a medical reporter, in a book about H_3[10] wrote: "Nowhere in any of her published reports or public statements has Prof. Aslan claimed to be making old men and women young again . . . '[H_3] imparts renewed vitality to old men and women and restores them to a more youthful condition.' "

Instead of using the word "rejuvenate" loosely, Mr. Marx uses it to mean "to stimulate vitality." As an indirect outcome, some diseases are reversed. Many persons who have been given the procaine treatment present a more youthful appearance.

Dr. Aslan admitted that it is not known at present how procaine works. Her opinion was that the substance is vitamin-like in effect, and speeds up or slows down certain chemical processes. She did not have equal success with para-aminobenzoic acid when used separately. In Mr. Marx's book, the following statement appears: "Procaine is much more successful in the treatment of old age than even extended vitamin therapy. Also the signs of 'rejuvenation' appear much faster than in people largely treated with vitamins." Mr. Marx describes the treatment itself: "In the prophylactic treatment of old age, dealing with people between 45 and 60, the cycle of twelve injections per month is observed, but one or two series per year suffice, whereas in the geriatric clinic, (for aged people) procaine is given regularly as a maintenance dose. The prophylactic treatment is of course in the experimental stage, and it will be many years before any significant statistical data can be obtained."

I have personally talked with two individuals who have observed the effects of H_3. Naturally, being interested in the problems of aging, I was curious to hear their experiences. The first person had seen it produce good effects with a small group of elderly people in a European country. Included in this group were several relatives of my informant.

The second person was a physician who specializes in treating the aging. This doctor told me that European reports on the use of H_3, show good clinical results. Unfortunately, preparation H_3 has not been tested clinically in this country. Such tests, he pointed out, are necessary to confirm the European findings, and to evaluate better its usefulness. His advice was to wait and see whether H_3 produces only temporary changes or long-lasting effects.

Dr. Heinz Woltereck, a biologist and psychologist, expressed[8] the opinion that there will never be a quick nor lasting method of "rejuvenation." But he offered this hope: "Nevertheless it will be possible to an increasing degree to postpone the onset of old age, and to preserve the normal activity of the human body until a very late stage. But in order to do this it will not suffice for the patient to be given some easy 'rejuvenation' cure; a greater physical and mental effort will have to be made by him if this end is to be attained."

Dr. Hans Selye[11] wrote: "Among all my autopsies (and I have performed quite a few) I have never seen a man who died of old age. In fact I do not think anyone has ever died of old age yet. . . . We invariably die because one vital part has worn out too early in proportion to the rest of the body. Life, the biologic chain that holds our parts together, is only as strong as its weakest vital link. When this breaks, no matter which vital link it may be—our parts can no longer be held together as a single living being."

Dr. Selye suggested that old age may be due partly to an accumulation of waste products interfering with the nourishment of the cells. Nutrition supplies nourishment to those cells, helps to maintain or rebuild if degeneration has not gone too far, and thus improves health and approximates youth. *Nutrition is admittedly slower, but it is also safe. Furthermore, it is relatively inexpensive, simple, and available to all. Nor do you have to wait. You can begin to use it immediately.*

4. How Long Will It Take to Slow Down Rapid Aging?

Naturally, you want to know how long it will take to repair your body. It depends on how far gone you are. If you have abused your body for years through faulty living, don't expect a miracle overnight. Abuses such as poor diet, infections, emotional disturbances, not enough sleep or exercise, overwork especially accompanied by tension, poisons of various kinds, alcoholism, drug addiction, even sleeping tablets, barbiturates, or tranquilizers—or any other causes of unnatural wear and tear—may have contributed toward rapid aging. I have personally witnessed cases of arthritis, gum disturbances, tooth decay, fatigue, dry brittle hair, and flaky skin respond dramatically within a short time by supplying the required nutrients. Food supplements, *if they are the right kind and taken properly,* will hasten results, since they are comparable to many pounds of food.

Formerly there was a clinic[1] in an eastern state which specialized in geriatrics, or the care of the aging. Movies were taken of people when they were first admitted to the clinic. The persons were suffering from premature old age, fatigue, weakness, aches and pains, and gray hair. Pictures were taken of these same people leaving the clinic six months later. Many of them had become stronger and full of vigor. Others found that their gray hair had returned to its normal color. Many looked twenty years younger, and admitted that they felt younger, too. There was no magic used in that clinic that you cannot use in your own home. No hormones or glandular secretions were prescribed. The only treatment given was in the form of scientific nutrition, adjusted to the needs of each and fortified with vitamin and mineral supplements.

I personally know one woman who responded so well to this type of nutritional technique. She has two pictures of herself, taken five years apart. In the more recent picture, she looks like a younger sister of the woman in the first picture! Such is the power of nutritional regeneration.

The following is an excerpt from a letter I received from a university professor. Six months ago he was worried and depressed about his heart condition which had been diagnosed as angina. Recently, he wrote me. ". . . As a result of a correct nutritional regime, the results have been dramatic and lasting thus far. I've been free from pain for months. My improvement was obvious within a week after starting the regime. I can now walk freely, have skated this winter, chopped wood, etc., all with no angina pains. The recent cold weather, which was always so difficult for walking, no longer causes the slightest degree of discomfort."

This man's diet included temporary massive doses of certain vitamins, together with specific foods now known to influence the heart. (See Chapter 14, "What About Fats and Oils?") A diet which has been inadequate for a long time may require temporary massive doses of vitamins, often by injection, and certainly under medical supervision. Rarely is there a deficiency of a single vitamin—although a single vitamin deficiency may show up first—because all the vitamins work together. Improving the over-all nutrition, plus vitamin and mineral supplements, will produce the best and quickest results.

Malnutrition is linked to starvation, and starvation is linked to old age. Remember the shocking photographs of released inmates from concentration camps? Although many were young, they appeared old and skeleton-like. It is possible, through improper care and lack of nourishment, to be old at any age. Such symptoms have been found in malnourished children. One eight-year-old girl developed gray hair which returned to its natural shade when her nutrition was corrected.

Dr. Tom Spies screened 5700 chronically ill people in Birmingham, Alabama. Of these, 893 were so feeble that they had not been able to work for years. They were found to have no serious diseases; they were just prematurely "old" with complaints of digestive, nervous, and mental ailments. Their common factor was nutritional deficiency, particularly in certain vitamins. A nutritional program was initiated for them. The cost of the materials used in rejuvenating them was less than the price of a pack of cigarettes per day. All 893 were returned to full-time work as miners, shipbuilders, steelworkers, housekeepers, and farmers.

Paul de Kruif, writing about Dr. Spies's work, reminded us that we should not look upon the results as extraordinary. We now live in an age when[2] "farmers now regularly supercharge the old-fashioned rations of their poultry, pigs and cattle with vitamins, minerals and hormones. They do it because this has enormously boosted the health, growth and vigor of their domestic animals." Factors in animal health are linked closely with human health.

Dr. Spies explained why nutritional therapy works[3]: "As tissues become damaged because they lack the chemicals of good nutrition, they tend to become old. They lack what I call tissue integrity. There are people of forty whose brains are senile. If we can help the tissues repair themselves by correcting nutritional deficiencies, we can make old age wait."

AN INCREASING NUMBER OF DISEASES ARE RECOGNIZED AS RESPONDING TO VITAMIN TREATMENT

Formerly it was believed that every disease was caused by germs, bacteria, or viruses. A lot of people still think so. But an increasing number of diseases are known now to be caused by vitamin deficiencies. The British Navy learned long ago that they could avoid scurvy by providing limes to their sailors during long voyages. It was discovered that limes had anti-scorbutic value long before the term "vitamin" was coined. Everyone now knows how rickets have responded to cod-liver oil and vitamin D therapy.

The story of beri-beri is another example of deficiency disease for which vitamin B-1 was accidentally discovered as a cure. Dr. Christian Eijkmann of Holland was sent to the Island of Java by his government in 1867 to find the cause of beri-beri. Medical treatment had failed. Eijkmann, who did research on prisoners in a penal institution, almost failed too. But one day he noticed that the chickens were staggering around the barnyard exhibiting the same symptoms as the prisoners. When he investigated, he learned that the chickens were being fed leftovers from the prisoners' plates. Boiled white rice was the chief fare of the prisoners. Finally it was discovered that when the original coating, or brown rice polishings, were restored to the rice, both prisoners and chicken recovered.

Today, most of the B-complex supplements, which are sold at a good price, include rice polishings. The B-1 coating on the outside of the rice helps us digest the starchy content. But this same coating is taken off the rice, and sold as a vitamin supplement at double the price, to those who eat the white rice! What foolish folly, both in terms of food value and flavor.

The story of pellagra is another episode in the growing saga of deficiency diseases which respond to vitamins. At the turn of the century the problem of pellagra became world-wide. In our country, especially in the southern states, there were about 100,000 cases each year, with nearly 10,000 deaths. It was cause for alarm. The disease was noted to be associated with the eating of corn meal, corn grits, and other corn products. Many doctors suspected that was caused by a germ or a mold. Others were convinced that it was caused by a gnat, common at that time, found on buffalo. Grants for research were made, and conferences were held, but without success. Twenty-three years later, Dr. Joseph Goldberger discovered that the cause was a vitamin deficiency in the diet caused by the degermination of the corn meal. The corn germ had been removed to allow long storage without spoilage. The corn meal, like the white rice, had become impoverished.

At first, the medical profession refused to believe Dr.

Goldberger's findings. Many still insisted that the disease was due to infection. But the patients who were fed milk, eggs, and as much as three ounces of brewer's yeast a day, were recovering. Dr. Goldberger succeeded in isolating the specific vitamin, niacin, one of the B vitamins, which was lacking in the diet of pellagra sufferers. It is niacin which is lost in the degerminating process. Despite this knowledge, it is still difficult at this time to obtain freshly ground undegerminated corn meal in the average grocery store or supermarket. It is possible to obtain it through special channels. (See Appendix Chapter 6, #11)

In addition to deficiency diseases such as scurvy, rickets, beri-beri, and pellagra, Dr. Robert McCarrison discovered that diets lacking necessary nutrients could also cause the following diseases or disturbances:

Glandular disorders
Pancreatic disturbance
Ailments of the reproductive system
Mental illness
Diarrhea and dysentery
Constipation
Indigestion
Colitis
Ulcers, both gastric and duodenal
Celiac disease
Heart trouble

After intensive study of nutritional effects on animals, Dr. McCarrison learned that all organs suffer when they are deprived of proper nutrition. He noted a wide variation among individuals—with one exception. The exception is the adrenal gland which showed disturbance in all forms of food deficiency. This suggests that poor nutrition in itself is a stress. (Dr. Selye called the adrenal gland the stress center of the body.) Dr. McCarrison concluded that vitamins as well as a properly balanced diet were necessary to assure functional perfection of each body organ and tissue.[4]

Dr. McCarrison cited two examples of the curative value of nutrition. They are quoted in detail because each case reflects the remarkable regenerative powers of good nutrition. One was a nine-year-old boy. His comfortable home and loving parents provided him with a happy environment, but physically he was pale, weak, scrawny, and listless. He had a poor appetite. He had, in succession, suffered from boils, intermittent abdominal pain, a knee pain when he walked, tonsillitis, and adenoids. His teeth were overcrowded, he was afflicted with a slight curvature of the spine, and he was hollow-chested. Other disturbances included colitis, anemia, a rash, bronchitis, restless sleep, and bad colds. He was always tired.

His discouraged parents took him from doctor to doctor. All agreed there was nothing organically wrong with him. For his anemia, one physician prescribed a diet of raw meat, iron, cocoa, fruit juice, and no milk. This helped for a while.

Another doctor diagnosed his knee pain as a muscular strain resulting from a weak ankle. He prescribed massage and exercises for his spinal curvature.

An orthodontist predicted that the boy would soon need his jaw stretched to make room for his crowded teeth, and blamed the trouble on tonsils and adenoids. He sent the young patient to a throat specialist who promptly removed the tonsils and adenoids.

Still another physician decided the boy's poor health was caused by improper breathing because he was hollow-chested. He advised him to lie for two hours daily on a hard surface with a heavy sandbag on his chest to force him to breathe more deeply. In addition he recommended ten minutes of strenuous exercise and a cold bath every morning.

One doctor advised a change of climate. But there was no noticeable improvement in the child's health or appetite. As a last resort, the parents turned to Dr. McCarrison, who immediately asked for a detailed account of everything the boy ate and drank throughout the day.[4] In general, it was a voluminous, high-calorie diet loaded with carbohydrates, fats, refined and synthesized foods. Although some meat, fruits, and vegetables were included, they were overcooked, or overbalanced by heavy desserts, white bread, refined cereals, and dried eggs. It was considered an elaborate array of food, but the boy was not thriving on it.

Dr. McCarrison analyzed the diet and found that it was greatly deficient in vitamins A, B, and C. He also noticed that the boy exhibited the same symptoms as laboratory animals also fed faulty food. He prescribed a new regime: natural foods such as milk, butter, fresh eggs, raw fruit, and raw leafy vegetables; meat, including liver twice weekly. Desserts, starches, and other carbohydrates were forbidden. Raw fruit was the only dessert permitted. Except for periods of rest, the boy was allowed to lead a normal life. Forced breathing, exercises, and cold baths were abandoned.

The result of the nutritional treatment was remarkable. The boy's appetite returned in five days. He gained three pounds in the first month. His sleeplessness and abdominal pain disappeared. Five months later, his general health was greatly improved, his color normal, his colitis was gradually diminishing. He continued to gain weight.

The second example cited by Dr. McCarrison is equally astonishing. She was a woman of thirty-three years of age. This is her own description of her symptoms, as she told them to Dr. McCarrison: " 'A feeling as of a heavy weight inside the head; a dull ache rather than an actual pain; makes the brain feel dull and irresponsive . . . a stupefied feeling requiring continual effort of will to get the brain to act; loss of power of concentration, difficulty in organizing thoughts and in putting thoughts into words; effort at concentration intensifies the discomfort . . . dislike of facing light; nervousness in meeting people and in having to talk. A feeling of exhaustion and lack of nervous energy. Drowsiness or torpor in the morning, and difficulty in keeping awake. Short relief by taking food, especially tea or coffee; relief lasts about ten minutes after a meal . . . a wish for concentrated foods to counteract the 'used-up feeling.' "

This patient first noticed her symptoms, as she looked back upon her life, at age twenty-three. Disturbances were at first intermittent and slight. There was nothing specific. Some days she felt normal. But vague discomfort gradually increased until at the age of twenty-seven the symptoms became too distinct to ignore. By the time she was twenty-nine, a physician advised her to take an eight-week rest cure in bed. This helped but did not cure the condition. Neither did new reading glasses nor aspirin help.

Soon after her rest cure, the symptoms returned. Her physician then prescribed thyroid extract which gave some relief. Meanwhile, she developed indigestion, anemia, sallowness, and a strained facial expression. She complained of feeling cold. Her headache, lack of mental concentration as well as nervous and physical exhaustion, were alleviated by the thyroid extract, which became her only source of comparative palliative. But it was not enough. At this point she consulted Dr. McCarrison.

Dr. McCarrison's examination again found a state similar to his laboratory animals fed deficient food: anemia, loss of weight, gastro-intestinal disturbances, thyroid atrophy, and adrenal insufficiency.

"I resolved," reports Dr. McCarrison, "to discontinue the use of the thyroid extract—much to my patient's alarm—and to try the effect of a well-balanced dietary, rich in vitamins of every class, similar to that used in the previous case. The result was remarkable. For the first six days of treatment the headache and feeling of exhaustion returned with their old intensity, so that the patient's will power was required to prevent her resorting to the thyroid extract. From the seventh day forward with but two relapses lasting a few hours, improvement was rapid and continuous."

At the end of two weeks her headache and exhaustion had disappeared. At the end of three months she reported feeling extraordinarily well in spite of giving up the thyroid extract. In fact, she felt better than she had with the help of the thyroid.

Dr. McCarrison summed up the case: "She is of good color, looks many years younger, her headache of ten years' standing is gone, her cardiovascular, digestive and endocrine functions are apparently normal, and to all appearances she is permanently relieved of her distressing disabilities—and this without resort to medicinal treatment of any kind."

CAN NUTRITION HELP MENTAL ILLNESS?

Freud predicted that eventually much mental illness would yield to the biochemist's needle.

From H. J. Berglund, M.D. and H. L. Nichols, Jr., in their book *It's Not All in Your Mind* comes confirmation: "Psychosomatic illness,—that is, physical disease caused or aggravated by emotional factors—does exist. But . . . it is chiefly a marginal factor, not a central cause, and its real importance is greatly exaggerated by our present ignorance of bodily functions. Also, in the final analysis, the mind which causes either mental or physical illness is a sick mind, and it cannot be sick unless the body—its physical stuff—makes it so. There is no emotional shock or strain so intense that its equal has not been borne by many people without prolonged loss of mental equilibrium. There is no brain so sturdily balanced, and so reinforced by psychoanalysis, that toxins or deficiencies in the blood stream will not unsettle it."

ARE PHYSICIANS ORIENTED TO NUTRITIONAL THERAPY?

According to Dr. Carlton Fredericks, a 1958 survey of American medical schools revealed that of 289 schools giving instruction in nutrition to medical students, the longest course was only *five hours* in nutrition as compared with *4000 hours* devoted to medicine. Dr. Fredericks reports that as a result of this thirteen-year study, the American Medical Association has passed a resolution proposing that henceforth adequate nutritional instruction be included in the medical-school curriculum. Meanwhile a doctor who may have attended one of these medical schools and missed out on nutritional training, has had little time while in active practice to acquaint himself with the rapid advances in the field of nutrition.

You would be wise to begin with a checkup with a physician who is nutritionally enlightened. There are, of course, other paths to slowing down the aging process. But according to those who have tried it, the correction of body chemistry is the first and most rewarding step. You may be surprised to discover how many problems, even emotional ones, begin to disappear as you begin to feel better.

As to the length of time it will take, it depends on you. One thing is certain: the sooner you begin, the sooner you will respond. Heed the advice of Enrico Greppi of Italy, a former president of the Association of Gerontology: "The time to start treating old age is before you suspect you are aging."

5. What's Wrong with Us?

"Health is much more than just the absence of disease. Good health also implies physical and intellectual vigor, vitality, and freedom from emotional, functional, and minor but incapacitating illnesses."[1] These words were written in the United States Department of Agriculture Yearbook of 1959 on *Food*.

Look around you. How many people do you see who are in perfect health as described above? Maybe some of them don't have very *much* wrong with them. They may only suffer from an allergy, fatigue, "nerves," migraine headache, hay fever, backache, a cold, insomnia, etc.; we are surrounded by so many minor ailments that we have come to consider them as inevitable.

When you are ailing and visit your doctor, are you the only one in the reception room? Are you ushered into your doctor's office immediately? Does your doctor have time to sit and chat, or listen without hurrying you or without interruption from the telephone? Of course not. He's too busy. This general pattern pervades every doctor's office in every town and city throughout the land. Everyone seems to have at least "a little something" wrong. What is wrong with us? The answer is obvious when we look at some statistics.

A survey made between July, 1957 and June, 1959 by the Department of Health, Education and Welfare and its Public Health Service, was based on a study of 73,000 households. It revealed[2] that:

among persons in 45-54 age group —56% have "chronic" conditions
among persons 75 and older —83% have "chronic" ailments
among persons 65 and older —they go to a doctor 6.8 times a year
among persons in 45-54 age group —they go to a doctor about 5 times a year
persons over 65 —have some degree of chronic activity-limitation
persons over 65 —have chronic mobility limitation

REGISTERED CHRONIC DISEASE IN THE U.S

1. Allergic diseases	20,000,000
2. All other diseases of the nervous system	15,000,000
3. Glaucoma	1,000,000
4. Psychosis and psychoneurosis	16,000,000
5. Mental deficiency	3,000,000

6. Arteriosclerosis and degenerative heart diseases	10,000,000
7. Arthritis and spondylitis	10,000,000
8. Epilepsy	1,500,000
9. Diabetes	1,000,000
10. Vascular lesions affecting central nervous system	1,000,000
11. Malignancy	700,000
12. Tuberculosis	400,000
13. Multiple sclerosis	250,000
14. All other congenital deformities	150,000
15. Acute poliomyelitis (late stage)	68,000
16. Ulcers of stomach and duodenum	8,460,000
17. Nephrosis	543
18. Muscular dystrophy	100,000
	88,959,534
Plus alcoholism	4,000,000
Plus obesity	32,000,000
	124,959,534[3]

More than 10,000,000 surgical operations take place annually.[4]

A stock market analysis described investment in hospital supply stocks as profitable and as a "virtually recession-resistant industry."[5]

AMERICAN EXPENDITURES FOR ILLNESS IN 1958

1. Hospitals	$5,100,000,000
2. Medicines and appliances (eyeglasses, braces, etc;)	4,362,000,000
3. Physicians *	4,300,000,000
4. Dentists	1,700,000,000
5. Osteopaths, chiropracters, private duty nurses, etc;	769,000,000
6. Nursing Homes	200,000,000
	$16,431,000,000
Plus: expenditures for health by Federal, state, and local governments	5,000,000,000
TOTAL	$21,000,000,000[6]

* paid in part by insurance

This shocking total is one billion dollars higher than the previous year.

Today, a completely healthy person seems to be the exception rather than the rule. It should be the reverse. One physician, who examines young men for the armed forces, reported that their hair is turning gray at an early age, their teeth are decayed or lost, their eyes, ears, and memory are below par, and their faces have begun to look old, with early wrinkling and sallowness of skin. Particularly are the wrinkles noticeable around the nose, eyes, and mouth, with facial muscles and lines beginning to droop downward. These observations are also reflected in statistics. About one-third of the men tested, are turned down by the army, and three-fourths are turned down by the navy, which has higher requirements. Even those who are accepted are far from being perfect specimens.

Adelle Davis, nutritional consultant, gave her reactions to the recent draft rejections:[7] "I hunted for statistics of health in America. . . . All I found were records showing people suffering from disease in huge, heartbreaking numbers . . . the increase in abnormalities is so appalling. These are not sickness figures; merely statistics of our finest young men at the height of their physical development."

In 1953, Draft Director Lewis B. Hershey stated that the nation might be out of manpower in the next two or three years, if the physical standards were not lowered. The standards were lowered. But despite lowering of standards, the number of rejections continues to increase. The rate of draft rejections for 1959 rose to 73 per cent, which is a shocking new high.[8] Nor is our decline in health limited to the armed service applicants. Weakness and fatigue are factors not confined to adults. Muscular fitness tests of American school children revealed that in the six to sixteen-year-old group 57.9 per cent failed in a minimum muscular fitness test. This was contrasted by only 8.0 per cent to 9.5 per cent of European children given the same test.[9,10]

When we hear about the decline of our physical health, we are inclined to shrug it off with a "so what?" But we must realize that it *is* our concern. If men are not good enough for the armed services, what do they do in civilian life? Perhaps they produce the machines used to maintain the peace—the precision instruments on which so many lives depend. Or perhaps they become chemists who manufacture explosives. There are those who go into factories to make the precision controls for the cars you drive, or pilot the buses, trains, or planes you ride in. Their clear intellect and steady hands and nerves are just as important to *your safety*. But fewer and fewer of these men are becoming available. So the status of the draft rejects is not one we can afford to shrug off. These rejects are drawn from your community. They live in the same block, or next-door to you. They shop at the same supermarkets and eat the same food. They drink the same water and breathe the same air. What happens to them, happens to you.

They, along with you, are growing old too fast. Is it necessary? *It is not!* But in order to reverse the trend, it is going to take spunk, courage, and action. There is no time to waste. What are you going to do about it in order to save yourself and your family? If I could make this reading pleasant for you, I would; nobody likes unpleasant facts. But this is the time to decide whether you are going to be Mr. and Mrs. Tarzan or Mr. and Mrs. Milquetoast. As for me, I'd rather face a few plain, hard facts and do something in order to stay well and young longer, than to stick my head, ostrich-like, into the sand and get old fast along with all the other ostriches. If your head is not already in the sand, here are a few more hard facts to face.

ARE PEOPLE ACTUALLY LIVING LONGER?

Even after reading the shocking statistics quoted above regarding illness, people will say: "But in spite of this, we are living longer." Are we? This notion requires a look a statistics, and an interpretation of them.

Dr. Norman Jolliffe said: "Although in America today life expectancy at birth is near the best in any civilized country in the world, at the age of forty, life expectancy is near the bottom."

Dr. Sebrell, Jr., Director of the National Institute of Health, said: "The improvement in life expectancy from birth is over twenty-eight years; from age fifty, only one and a half years."

On the subject of life expectancy, the United States Department of Agriculture Yearbook of 1959 on *Food* stated: "It is important to realize that most of the gains in longevity have come about through prevention of mortality at young ages. Great progress has been made in this sector. Relatively little has been gained in older age groups."[1]

This view was expressed again, by John T. Connor, President of Merck and Co., when he said,[11] "We have made most of our longevity gains in recent years by cutting the mortality rate of infants and younger adults and almost no progress in raising life expectancy of people after they reach sixty-five."

It should be pointed out that years ago, infectious diseases took a heavy toll of lives. Childbirth, infant mortality, and childhood diseases took many lives. Today, with modern sanitation, education, and vast progress in medicine, infectious diseases have been reduced considerably. At the other end of the scale, many older persons are being kept "alive" today with the "wonder drugs" who years ago would have been in the mortality statistics. Both of these factors, at each end of the scale, tend to raise the life span—on paper only. Meanwhile, the degenerative diseases have increased over *five times* what they were seventy years ago! In 1890, only about 10 per cent of all deaths were due to degenerative causes. In 1950 about 54 per cent of all deaths were due to degenerative causes.

Let's look at it another way. These figures are taken from the federal government census and Metropolitan Life Insurance Company figures for a hundred-year period from 1850 to 1950: a newborn baby in 1950 could expect to live 30.1 years longer than in 1850; but a ten-year-old boy could only expect to live 13 years longer; and a forty-year-old man could only expect to live 5.2 years longer; a fifty-year-old man could only expect to live 1.7 years longer and a seventy-year-old man could only expect to live 1.6 years longer. In view of the tremendous scientific progress we have achieved, has it actually added any years to the life span? Unfortunately not!

HOW DO WE COMPARE WITH OTHER COUNTRIES?

Numerous writers have written[12] about the Hunzas of northern India. They are noted for longevity. Deficiency diseases, including cancer, ulcers, and dyspepsia, have been unknown. Hunzas are also noted for a lack of crime.

They have no jails, no police, no banks, no moneylenders, no divorces, and until lately, no doctors. Many live to be over 100.

Dr. McCarrison spent seven years living among the Hunzas and observing them. He concluded that the excellent health of the Hunzas was due to three simple factors:

1 They eat natural food (unrefined)
2 They grow it on fertile, organic soil
3 They eat the food fresh

The food of the Hunzas is grown organically and composted. All waste matters are returned to the soil to maintain it in a high state of fertility. No chemicals are used. The Hunzas eat their vegetables raw—even young green corn—and they eat it fresh and crisp right out of the garden. They also eat fresh and sun-dried fruit, particularly apricots. They eat their fruits whole, including the skins, seeds, and pits. They also have sprouted beans, freshly ground wholewheat flour, raw milk, and in summer, fermented milk (yogurt). Meat is rarely eaten—about once a month and during December, their feast month. Eggs and fowl are eaten the year round. Until recently they ate no sugar or processed foods. The entire family works in the fields, and they spend a great deal of time in the open air.

Dr. McCarrison fed experimental rats the food of the early Hunzas. He found that it resulted in a superior peaceful strain of animals, with no illnesses or deaths. He fed another group of rats the typical English diet. Those rats became irritable, tried to kill each other, and contracted all sorts of human-type ailments.

According to John Tobe, the most recent investigator, the Hunza picture is changing. Infectious diseases are being carried back to Hunza by natives returning from the army or work in outside communities. Tooth decay is beginning to parallel the use of sugar and other imported "civilized" foods.

H. Leon Abrams, Jr., an anthropologist, observed the Maya Indians of Yucatan as recently as February, 1960. He discovered that the people had excellent teeth, free of decay, in spite of no brushing or special care. Sterility is almost unknown among the women. Feeble-mindedness is rare. Their diet is short of animal protein, and consists of 75 per cent carbohydrate. Despite this, they are surprisingly healthy as long as they adhere to their native diet:

1 Corn, as tortillas, gruel, or mush
2 Frijoles (beans)
3 Squash, tubers, green leaves of plants, boiled
4 Vegetables, including tomatoes, chili peppers, green tops of onions, squash seed, and other various native vegetables
5 Fruits, in moderation
6 Honey, in moderation
7 Meat and fowl, especially the organs, of both domesticated and wild animals, as often as available.

Mr. Abrams reported that[13] "Due to the rapid progress of modernization, however, the lives of these people will eventually be drastically changed; this process has begun to take place most rapidly within the last two decades."

Arnold De Vries has assembled historical documentation[14] which indicates that primitive tribes all over the world were strong and healthy as long as they adhered to their native diet. This included North and South American Indians, Eskimos, Europeans, Asians, Africans, Australian aborigines, New Zealand's Maoris, and other groups that were in glowing health. Their eyes were bright, their teeth perfect, their endurance almost incredible. Men could run all day without fatigue. Disease was almost unknown. Recovery from accidental wounds was rapid. Women bore perfect babies without pain in approximately thirty minutes, and were usually back at work in the house or fields an hour later. Most people lived over a hundred years, with no gray hair, loss of sight or hearing, or other signs of degeneration.

Dr. Weston A. Price[15] and Vilhjalmur Stefansson[16] have both observed similar characteristics in primitive peoples, untouched by civilization, within our own lifetime. De Vries, Price, and Stefansson all arrived at similar conclusions independently. Regardless of the diet of an individual tribe, *as long as its food was natural, whole, and unrefined, each group maintained perfect health.* Some tribes were exclusively vegetarian; others were lacto-vegetarians; others were largely meat eaters; and still others were largely dairy-product eaters. As long as the food was eaten fresh, whole, and much of it raw, they flourished.

These three observers arrived at another conclusion independently. Without exception, whenever a tribe was introduced to "civilized" food such as canned and refined food, including white sugar and white flour brought in by traders or visitors, health began to decline. It declined at a rapid rate. Teeth decayed; childbirth became prolonged and painful; disease attacked children and adults; energy abated; old age and death came early.

Now let's turn our attention to some quiet but revolutionary attempts in "civilized" sections of the world to improve nutrition and health. During the first World War, Mikkel Hindhede, Superintendent of the Danish State Institute of Food Research, was assigned the task of alleviating a serious food shortage in Denmark. Promptly, he set up new food regulations which curtailed certain foods such as pork, and eliminated others such as alcoholic beverages, in order to save grain for food. For greater nourishment, bread was made of whole-meal flours, including rye, oats, and bran. More green vegetables, fruits, milk, and butter were made available.

What were the results of these changes in the dietary? From March, 1917, until the war's end, Denmark became the healthiest nation in all of Europe! The death rate fell over 40 per cent in one year. It was the lowest ever registered in any country. Malnutrition and disease which affected other countries by-passed the Danes. The dreaded influenza epidemic, which decimated other populations, touched the Danish people lightly.

There was another quiet revolution in England. The medical doctors of Cheshire County, England, were appalled by the health of the draft registrants they were called upon to examine. In 1939, the physicians of Cheshire County issued a "Medical Testament." They decided that something had to be done to improve the health of their population. They began working with the diet of pregnant mothers. The bread was to be made from whole-wheat flour, reinforced with half its weight in raw wheat germ. The flour was to be freshly ground—within thirty-six hours of baking time. Whole cereals, liver, eggs and fish were stressed. Fruit was used in abundance; vegetables were raw or quick-cooked. It is interesting to note that the

Cheshire people not only enjoyed far greater health, but also were more cheerful.

In the cases of the Hunzas, the Mayans, the Danes, and the Cheshire County Englishmen, all the diets are similar insofar as they are as *natural* as possible. Apparently the thing to do is to *get back to nature.*

Unfortunately, America seems to be headed in the opposite direction. Also, other countries try to emulate us. The wife of a physician told me how much she had looked forward to a vacation trip to the West Indies, largely because she anticipated the natural food grown on the Islands, but was then shocked to find that most of the food had been flown down from the United States. She was exposed to the same overrefined, lifeless food which surrounded her in her home town. "It seems," she observed wryly, "that food everywhere is becoming all-American."

America's dilemma is that we take poor health for granted. A sudden change in our environment would be startling. For example, short skirts for women following years of long skirts, seem shocking. But if those same skirts were shortened only half an inch every year, few people would be aware of the difference. Our poor health is like the shortened skirt. It becomes worse so gradually, that we are not aware of the question: What's wrong with us?

6. What's Happened to Our Bread and Cereal?

Did you ever hear the story of the woman who always cut off a piece of her ham before putting it into the oven? When she was asked why, she said she really didn't know; she did it because her mother did it. When her mother was asked why *she* did it, she explained that she cut off a piece of ham before putting it into the oven because her pan was too short. Like sheep, we all tend to do what the other fellow does, good or bad. This applies to our food habits as well as other habits. Today most people eat white bread and processed cereals because other people do.

One mother decided she was going to turn over a new leaf, nutritionally, in the lives of her children. She began to make all the sandwiches for their school lunches of whole-wheat instead of white bread. Then one day the sandwiches came back in the lunch boxes, uneaten. The next day the same thing happened.

"What is the matter with those sandwiches?" she asked suspiciously.

The children looked sheepish. "Nothing really," they admitted, "but all the other children have sandwiches made of white bread and they make fun of us because ours are different."

"If white bread or other foodstuffs, such as cake, rolls, cookies, etc., were eaten only seldom, their nutritional shortcomings would not create any serious problem, but the reverse is unfortunately true. According to records kept by the Food and Drug Administration, devitaminized wheat flour products imported into the city of New York constitute around 55 per cent of the whole food intake."[1]

WHAT'S WRONG WITH OUR BREAD?

For centuries grains have always been recognized as basic whole foods. Wheat, rye, oats, corn, barley, buckwheat, rice, and millet have a long history of use. When human teeth could not crush grains properly, millers crushed them between two large stones. This method of stone-grinding preserved all parts of the kernel, and the product was called "whole grain." If it is finely ground, it becomes flour. If it is coarsely ground, it becomes cereal. The value of stone-grinding is that the grain is ground slowly and the grain remains unheated, and a whole food. The flavor as well as the value of such flour and cereal has always been excellent.

In 1840 a silk bolting cloth was invented. This permitted the miller to separate the bran from the flour. It became possible to mill spring wheat successfully. But the discarded bran impoverished the flour. Then, in 1870, a steel roller mill was invented, which superseded stone grinding. The steel roller mill ground wheat one hundred times faster. This increased production was beneficial to the miller, but it further impoverished the flour. The heat generated by the roller mill destroyed the structure, greatly reduced the protein content, and caused the delicate wheat germ to gum up the roller. The millers decided that it was time to remove the wheat germ. To the millers' delight, they noticed that the wheat flour, without the wheat germ, kept far better because old wheat germ turns rancid.

When the roller mill was invented, the incidence of heart disease began to rise. At that time, no one connected the two developments. *Even today, most people do not connect the two.* Today we know that the missing wheat germ is rich in Vitamin E, and is now officially recognized as essential by the Food and Drug Administration.

The Minnesota Agricultural Experiment Station recorded[2] that cattle deprived of their Vitamin E rations, appeared to be in perfect health, but suddenly dropped dead of heart disease. When the wheat germ was restored, the deaths from heart disease stopped.

BREAD IS NO LONGER THE STAFF OF LIFE

After the wheat germ was removed, the flour still had a slightly golden color. About that time, a vogue sprang up making it fashionable for foods to appear as pure and antiseptic as possible. White became the fashionable color of the day. Kitchens became all-white, and white sugar appeared more antiseptic and "pure" than brown sugar, even though all the vitamins and minerals were eliminated in the processings. Of course flour, too, followed suit. The millers discovered that they reaped benefits from this craze for white food. By using bleach with the flour, they could "age" or "mature" the flour more rapidly. It also permitted the practice of combining old, moldy, gray inferior flours. Everything came out lily white after the bleaching! No more tattletale gray! In addition, the bleach sterilizes the flour.

For about thirty years a bleach called Agene was used. In 1946 Dr. Mellanby of England discovered that Agene caused running fits and mental deterioration in dogs. After public pressure, the Food and Drug Administration finally outlawed the use of this bleach—but allowed the millers first to use up their supplies. At present, oxides of nitrogen, chlorine, nitrosyl chloride, chlorine dioxide, and benzoyl peroxide mixed with certain chemical salts are still permitted. The bleaches of chlorine oxide combine with proteins in the flour and form alloxan. This is a poison which has been used to induce diabetes in laboratory animals. Although presumably the gas goes out of the flour after the bleaching, the Ministry of Health in Great Britain took the position that the products formed may act injuriously, and may impair the nutritional qualities of the flour.

Some of the oil of the wheat germ may escape into the flour. This makes it possible for the flour to go sour and nourish insects. Chlorine dioxide destroys any remaining Vitamin E; but it produces a toxic product or a perverted one with the essential fatty acid oil, and destroys or may form a toxic product with the methionine (an essential amino acid).[8] Thus, the bleaches further impair the flour.

HOW IMPOVERISHED IS OUR FLOUR?

A few years ago Senator W. P. Richardson, of Goshen, New York, made arrangements to get stale white bread from hotels to feed his pigs. Before long, his pigs became runty, and contracted many diseases. The brood sows had small litters or aborted. Even the chickens began to lay irregularly. The tiny chicks which hatched were so weak that few lived. The senator began to wonder about the white bread. He placed two test groups of pigs in separate pens, feeding white bread to one group, and whole wheat and whole corn to the other group. Within three months, the pigs which had been fed the white bread were exhibiting the same symptoms as his earlier pigs. Those in the second pen remained normal.

Senator Richardson said: "When I think of my experience in feeding pigs white bread left over from New York City's leading hotels, I am astonished at the indifference which white bread eaters manifest toward so many of their ailments. The counterpart of these ailments on my pig farm, with all their distressing consequences, came upon me as a complete surprise. Had my pigs and chickens been eating nothing but white bread, I might have suspected the cause of the trouble before so much damage had been done; but they were rooting around and grubbing for themselves, getting lots of other food. I believe the white bread consumed by them didn't amount to more than half of what they ate, but it was certainly enough to cause a commotion in Goshen." (The commotion: the neighbors not only stopped feeding white bread to their hogs; they also stopped feeding it to their children.)[4]

According to a study at the University of California,[5] College of Agriculture, the milling of whole-wheat flour into white flour causes the following losses to occur:

VITAMIN AND MINERAL LOSSES

Vitamins

Thiamin	about 80% is lost
Riboflavin	about 60% is lost
Niacin	about 75% is lost
Pantothenic Acid	about 50% is lost
Pyridoxine	about 50% is lost
Biotin	no exact measurements are available, but since they are found in greatest abundance in the bran and wheat germ, they must be largely lost in the milling.
Inositol	
Folic Acid	
Choline	
Para-Aminobenzoic Acid	

There are at least four other vitamin factors, much of which must be lost in the milling because they are generally found in bran and wheat germ.

Minerals

Calcium	about 50% is lost
Phosphorus	about 70% is lost
Iron	about 80% is lost
Manganese	about 98% is lost
Magnesium	about 75% is lost
Potassium	about 50% is lost
Copper	about 65% is lost

Proteins

Milling reduces both the quantity and quality of the proteins. The proteins of *good* quality are removed with the germ and bran, leaving in the white flour only proteins of *poor* quality.

Fat

About one-half of the fat is lost. This fat has a high food value, since it contains unsaturated fatty acids and vitamin E, all of which are nutritionally very important.

WHAT ABOUT "ENRICHED" BREAD?

Dr. Agnes Fay Morgan, Department of Nutrition and Home Economics of the University of California, wrote:[6] "Whole wheat contains many nutrients not present in 'enriched' white flour. Most of the vitamins, minerals, and the highest quality protein of the wheat are present in the germ and outer layers which are removed by modern milling.

"The solution of our bread problem, therefore, should be sought in the return to the use of whole grain flours, not in the inadequate 'enrichment' of the impoverished refined flour."

Canada has passed a law prohibiting the enrichment of bread with synthetic vitamins. The Canadian law provides that if a high-vitamin bread is to be sold, it must contain the original vitamins found in the wheat, and not imitations!

In Switzerland white bread is taxed. The tax is given to the whole-wheat bread makers to help bring the price within the reach of more people.

WHAT ELSE IS DONE TO OUR BREAD?

In addition to the impoverished flour used in most commercial breads, they suffer from other indignities as well. Chemical softeners are used because most people will not buy white bread unless it is fluffy "fresh." It is reported that there are now dispensers, hidden in the bread sections of some supermarkets, wafting a chemical odor akin to fresh bread, to attract buyers to purchase less-than-fresh bread.[7] At the Delaney Hearings before Congress on chemical food additives, Dr. Edward Eagle of Swift and Company testified[8] that his company had conducted tests in which animals were fed a bread softener, polyoxyethylene. The animals developed diarrhea, rectal inflammation and ulceration, kidney enlargement, as well as kidney and bladder stones. Hamsters, fed on a synthetic diet, as well as another chemical used to make bread fluffy, were all dead within two weeks.

In addition to softeners, bread also may contain chemicals that act as stabilizers. Thickeners such as gums and treated starches may be used as fillers. Synthetic flavors and mold inhibitors are usually added. A newspaper account gives pause for reflection:[9] "One wonders! After reading about a bakery in Cozad, Nebraska, we're wondering how many other bakeries have the same problem. Seems that this bakery operator discovered that the chemical additive used to keep bread from drying out was taking the paint off his equipment and off the container in which it was shipped. This baker said, 'Cannot use it in my products for the general public since I will not allow my own family to eat it—knowing what it does. . . .' "

WHAT ABOUT COMMERCIAL WHOLE-GRAIN FLOUR AND BREAD?

By now, you should be convinced that bleached white flour and products made with it have no place in your dietary, if you are to stay young longer. Now you wish to use the whole grains exclusively. Where do you buy them? Stone-ground whole-grain flour is almost as perishable as milk. Once it is ground, it begins oxydizing. The germ becomes rancid within a brief time, unless the flour is used soon or stored properly. For these reasons, it is not recommended that you buy whole-grain flour that has been resting on the shelf of the average grocery store indefinitely. In addition to the problem of staleness, there is the problem of fumigation. Remember that the whole-grain flour sustains life. Therefore it becomes infested easily with weevils, etc. For this reason, it sometimes receives heavy doses of fumigation. Commercial whole-wheat flour has been treated, in some instances, with more than 400 per cent as much bleach as used with white flour to resist weevil infestation. It is little wonder that in experiments with animals,[10] where 54 per cent could survive on white bread, there were no survivers at all on commercially prepared whole-wheat flour and bread.

Where can you obtain freshly ground, stone-ground whole-grain flour? There are special sources, growing in numbers, as more and more people demand quality food. You will have to shop around and ask. Sometimes there are special stores which are called "health food" stores; there are special departments in some supermarkets and department stores; there are consumer co-operatives where whole grains are stone-ground to order while you wait, just as coffee beans are custom-ground. If none of these sources are available readily to you, there are reputable mail-order companies which will grind the grain of your order on the very day the order is shipped. For sources, see the Appendix.[11] Make certain that you use the flour promptly after you obtain it. Whatever you do not use at once should be packaged tightly and kept under refrigeration. For suggested homemade whole-grain bread recipes, see Chapter 18, "How Can You Eat For Health and Youth?"

There is still another possibility available to you. Purchase a small home-model stone grinding machine, and order your own clean, unsprayed whole grains in the kernels. Grind them freshly as you use them. For sources, see the Appendix.[12]

Dr. D. T. Quigley and others feel that the grinding of grain within the home offers the solution to the national bread problem. He wrote:[11] "This sort of arrangement would completely change the milling industry. The revolution in dietary affairs would put all the milling in the hands of the bakers, to the disadvantage of the millers; but it would be returning to somewhere near the conditions that existed before the days of the big mills, when a farmer took his grist to the neighborhood flour mill to be ground."

WHAT ABOUT THE DRY, PACKAGED CEREALS?

"Most Americans can afford a hearty breakfast, but millions fail to eat one. Instead they eat cold cereals. . . . What they do is munch fragments of dried starch that have been dumped from a cardboard box, dampened with a trickle of milk and dusted with granules of sugar. As they put this mixture into their mouths, many of the feeders actually glow with a sense of well-being. Decades of tradition and millions upon millions of dollars of advertising have trained them to regard their ready-to-eat cereal as the last word in the morning nourishment. . . ." wrote Richard Carter.[13]

"The slogans alone are enough to excite one's blood; 'The Breakfast of Champions,' 'High Protein for More Manpower,' 'The Tastiest Way To a Healthy Outlook,' 'Flakes, the Body Building Whole Wheat Cereal' . . . and just wait 'till your family gets a taste of the latest addition . . . 'Sugar Crisp; that "honey" of a new candy coated puffed wheat cereal! It's a peak treat.' "

Richard Carter commented: "Of the 15,000,000 Americans who eat cold cereal every morning, a depressingly large number are children." What attraction do they hold for children?

To get box tops
To get the milk and sugar on them
To get crunch
Because they are quick and easy
Because of the lure of advertising
Because of the association in the minds of the children of exciting characters suggested by radio and TV commercials.
Because of an ingrown habit somebody is too lazy to break or question
Because, although they may not have tasted the more nutritious cereals, they say, "I don't like them," which really means, "I am not used to eating them."

As you might suspect, the original whole grains which have been used in the dry packaged cereals have undergone much refining. By the time they are packaged, the original grains cannot be recognized. In addition to the extraction of much that is valuable, the dry packaged cereals receive a fair share of chemical additives from the ingenuity of the food technician. Here is the listing of ingredients taken from the box of a popular cereal:

"made from corn; sweetening, salt, malt flavoring; butylated hydroxyanisole and butylated hydroxytoluene in corn oil with acetyl tartrate mono and diglycerides added as chemical preservatives to maintain freshness; niacin, Vitamin B-1."

The University of California made a survey of packaged dry cereals. They discovered that average cost was 90 per cent higher than an old-fashioned cooked grain cereal. This should clinch the argument!

7. Is Sugar Harmful?

HOW MUCH SUGAR DO YOU EAT?

Many people think that they do not eat very much sugar. Are you one of them? Do you realize that much sugar is contained in hidden form in many of your foods. Do you know that even if you do not choose to consume any sugar, your body still converts 68 per cent of other foods in your diet into sugar?[1]

In 1850 Americans consumed about ten pounds of sugar per person annually.[2] Now Americans consume over one hundred pounds per person—by conservative estimates. Parallel to this sharp rise of sugar consumption, has been an alarming increase of diabetes and tooth decay.[2] Below, is a chart listing some foods commonly eaten.[3] What was your total intake yesterday? Multiply the number by 365 days. This will give you some idea of the amount of sugar *you* consumed last year. (16 tablespoons of sugar equal ½ lb.)

Item	*Portion*	*Refined Sugar in teaspoons*
Angel Food	4 oz.	7
Cup Cake—iced	1	6
Chocolate Eclair	1	7
Cola Drinks	6 oz. bottle	3½
Doughnut—glazed	1	6
Fruit Salad (canned)	½ cup	3½
Ginger Ale	6 oz.	5
Hard Candy	4 oz.	20
Ice Cream	3½ oz.	3½
Jelly	1 T.	5
Orangeade	8 oz.	5
Root Beer	10 oz.	4½
Strawberry Jam	1 T.	4

In addition to the above listing, there are many other sources of sugar intake. Do you chew gum? Do you add sugar to your coffee, tea, or cereal? Do you drink cocktails? A cocktail alone can contribute close to a tablespoon of sugar. Commercial glucose is used as a filler in commercial products such as canned fruit, candy, jams, jellies, preserves, cheese spreads, frozen fruits, ice cream, and soft drinks. It is widely used because it is cheap. Commercial glucose, also known as dextrose or corn syrup, is the least desirable of sweetenings, according to one report.[4] Glucose is the least sweet, thus making it a temptation to eat more. It is also absorbed more rapidly than other sugars. Because it is not very sweet, it is possible to consume large amounts of it with little awareness. In experimentation with animals, commercial glucose fed to the animals caused one type of diabetes.[5] Canada has banned glucose in soft drinks.

IS SUGAR HARMFUL TO THE BODY?

There is mounting evidence from many medical sources which substantiates the charge that sugar is harmful to the body. The following are some which will be of interest to you.

You may have heard the expression, "A sweet tooth is a decaying tooth." Scientific studies support this claim.[6] Since sugar was found to cause tooth decay, a notable experiment has been performed. Dr. Clive McCay, doing Naval Research, discovered[7] that human teeth soften when they are submerged for a few days in cola drinks, due to the phosphoric acid content. But we are still a nation of large consumptions of cola drinks. There is a saying[8] that more steel goes into pop bottle tops in this country than into cars. Although some schools have banned the sale of soft drinks as well as candy on the school premises, there still remain many outlets for access to these products. I am appalled at seeing children queue up daily at confectionery stores during lunchtime and after school hours to spend their allowance for candy and soft drinks. In one town where unlimited purchase of candy by school children is common, a dentist reports that it is not unusual for individual children to have thirty new cavities every year.

Doctors and dentists agree that if large amounts of sugar are consumed, it displaces nutritious foods and can lead to trouble. Melvin E. Page, D.D.S. wrote, "It is well known in medical and dental professions that sugar is not essential in the diet as an energy food. The general public suffers from this misconception due to misleading advertisements."

D. T. Quigley, M.D. added:[9] Sugar is a concentrated carbohydrate containing no vitamin or mineral of any kind. Every ounce of sugar that is taken reduces the ability to resist infection, as it furnishes only calories and none of the elements which protect against infection."

Morton S. Biskind, M.D. made another charge:[10] "The requirement for the B vitamins is in direct proportion to the intake of carbohydrate. Thus in order to burn this sugar, B vitamins must be burrowed from the remainder of the diet which rarely has enough for its own calories."

This robbing of B vitamins was revealed in experiments with diet conducted in a large medical clinic. A regime consisting of meat, fish, eggs, fresh fruits and vegetables were given, *plus* sugary desserts. The addition of the sugary desserts caused a state of affairs close to a nervous breakdown in patients. In spite of an otherwise excellent diet, the sugar was robbing vitamin B1 from their bodies.

This is confirmed by the statement from the Handbook of Nutrition issued by the American Medical Association.[11] "White sugar contributes only calories to the diet. It is clear it means a smaller consumption of nutritionally superior foods."

Too much sugar or careless eating were held[12] more likely to be the cause of ulcers than strain, stress, or executive responsibilities. It was also noted[13] that sugar was used by cancer cells in their wild growth.

Sugar has been found to interfere with body chemistry in many ways. A disease which has not been generally recognized for many years is related to this problem.

A NEW DISEASE. DO YOU HAVE IT?

When you experience a low, weak, or shaky feeling it may be what doctors call "low blood sugar." It is the opposite of diabetes and carries the technical name "Hyperinsulinism." Strangely enough, the cure for low blood sugar is not sugar. Admittedly it does give you a quick pickup, but it also gives you a quicker letdown. Sugar causes an oversensitive pancreas to secrete too much insulin. It sends your blood sugar skyrocketing and makes you feel temporarily better, but for those people who are afflicted (and many are), the sugar causes their blood sugar to plunge even lower than it was before. This leads to fatigue, then mild irritability and finally downright crankiness.

Maybe this disturbance has always been with us, but it is just being generally recognized. In this case, the book, *Body, Mind and Sugar*,[14] which explains the ailment, is *must* reading. When anyone in our family looks suddenly pale and then gets irritable, I rustle up a quick snack and don't worry about spoiling appetites for the next meal. This applies particularly to children. Even our cats begin to snarl at each other when they get hungry. A man and wife I know, have an ironclad rule not to say anything to each other in the evening just before dinner, for fear it may precipitate an argument.

A business executive stores snacks in his pocket prior to a long-drawn-out board meeting of his associates. When the men begin getting tired and snappish, he says, "Gentlemen, your low blood sugar is showing!" and then distributes the snacks around the table. In minutes everyone is pleasant again.

Fortunately such behavior can be helped by the proper snacks and cured as long as the sufferer maintains the proper diet. The cure is simple: a high-protein diet with absolute avoidance of sugar in any form. Sufferers from hyper-insulinism produce too much insulin which lowers the blood sugar level more than it should. Symptoms include weakness, shakiness, sweating, hunger, listlessness, mental confusion and, in extreme cases, even blacking out. A fuzzy feeling appears about four to six hours after a meal and if a meal is delayed, the symptoms get worse. Such people experience a feeling of elation after a meal, usually claim they feel better without breakfast, have a desire to nibble between meals (and they should), and often crave sweets. Since low blood sugar is beginning to be better understood, it often explains temper tantrums, migraine headache, a rapid heartbeat, the tennis player who blows up in the last stages of the game, or the railroad engineer who goes through a signal after years of a perfect record. Low blood sugar can lead to alcoholism, allergy, neuroses, chronic fatigue, insanity, suicide, and even murder.

One woman described herself as the meanest person alive when her blood sugar level dropped. Another was on the verge of being committed to an institution. Her real trouble, low blood sugar, was discovered just in time: proper treatment for the disorder saved her from the institution.

Smoking makes the condition worse, yet low blood sugar people are usually nervous chain smokers.[15] Coffee, with or without sugar, is the worst possible beverage, since it triggers off insulin production and has no staying power to back it up. Sugar in any form, for an oversensitive pancreas, is ill-advised. With the following diet, however, the afflicted individual can keep the disturbance under control. And yet, even after months or years of correct eating, if he takes one misstep, the disturbance may reappear like a flash. Physicians can diagnose the problem by giving a glucose tolerance test.

Snacks to Keep Handy:

Nuts (raw, preferably unsalted) Sunflower seeds. Cheese

If just prior to a meal, use raw crunchy vegetables such as carrots, celery, or cabbage, to avoid overspoiling the appetite.

Mid-meal snacks could include whole fresh fruit (juice elevates the blood sugar too rapidly) or a glass of milk.

The Diet:

A *high protein breakfast* is a must. It will not cause overweight since the appetite will adjust correspondingly at other meals.

All the protein, salads, and whole fruits you want.

Beverages: Weak tea, decaffeinated coffee. If sweetening is a must, use saccharin.

Desserts: Fruit, unsweetened gelatin, custard, junket.

Avoid absolutely: Sugar in any form, particularly in candy, cake, pies, puddings, and ice cream; also coffee, strong tea, starchy vegetables and fruits, dried fruits, grapes, bananas, ordinary spaghetti and macaroni (use high-protein variety), wines, cocktails, and beer.

You may include: Club soda, dry ginger ale, whiskies, and other distilled liquors, in moderation.

Now, let's examine some actual sugar case histories. Donald Shriber, D.D.S., said,[16] "There are those who feel that the mouth is a separate entity from the rest of the body and the treatment of that mouth can only be done surgically." Here are some of Dr. Shriber's cases which prove otherwise:

Case 1

A nineteen-year-old girl came to him because her gums were bleeding whenever she talked, and she was embarrassed. She was also so tired and felt so miserable that throughout the first interview she cried. She complained of spells of fatigue, dizziness, from which she once collapsed on the sidewalk. She suffered from headaches for which she took quantities of aspirin and she was a victim of constipation for which she was always taking something. Six weeks before the interview she had been advised to eat five candy bars a day to correct her dizziness and low blood sugar. All of her symptoms became worse, including the blood sugar which was now lower than it had been six weeks previously.

Dr. Shriber immediately placed her on a diet completely eliminating white sugar and white flour, including high protein, a moderate amount of fat and healthful starches. Two weeks later she returned. Her gums had stopped bleeding, she was full of pep, her headaches had stopped on the third day of the diet, and she had had normal bowel evacuations daily without laxatives. Her blood tests showed that her blood sugar had risen to a normal level.

Case 2

A fifty-year-old woman came to him for help with considerable bone loss around her teeth. She complained of severe headaches in the back of her head in addition to sinusitis, as diagnosed by a specialist. She had to get up two or three times during the night to urinate and had had constipation for years. She had an insatiable craving for candy, consuming as much as a pound or two pounds a week. She woke up exhausted and stayed exhausted all day in spite of frequent naps. She also suffered from mental depression and menopausal hot flashes.

In two weeks, on a sugar-free, white-flour-free diet, her teeth became tighter and free from sensitivity to extreme temperatures of food. She had had only one headache and her post-nasal drip was improving. She slept all night without having to get up and her feeling of exhaustion had disappeared. Her husband testified that she was more cheerful and that her hot flashes had nearly stopped. The only lack of improvement in this short time was that she still craved sweets. Her blood chemistry revealed such progress that no other treatment was necessary.

Case 3

A man was allergic to eggs. His lips and tongue would swell to the point that he could scarcely breathe. He also suffered from dermatitis. After thirty years of abstaining from eggs, by cutting sugar out of his diet, he was able to eat six to eight eggs a day with absolutely no discomfort, and his dermatitis disappeared. If he returned to sugar, his allergy to eggs and his dermatitis promptly returned.

Case 4

A woman was a patient at a county hospital with painful pyorrhea and a blood pressure of 260/150. She had been taking a tranquilizer for two months without any relief. Her constipation was so severe that she had only one bowel movement a week.

After a sugar-free diet for two weeks, a drop of 110 points occurred in her blood pressure, making it 150/100. Her cholesterol dropped from 360 to 190. Her blood pressure continued to drop until it fluctuated between 130/80 and 130/85 and she showed no further need for a tranquilizer. Her bowel elimination increased to once or twice daily.

Case 5

Dr. Shriber says fully 50 per cent of his patients formerly suffering from migraine headaches experienced a complete recovery when sugar was removed from their diet. One woman, age fifty-eight had suffered from migraine headaches since she was eight years old. At times she was so nauseated she was obliged to go to bed, often for two or three days, and was unable to do her housework. Drugs gave her no relief. Neither did psychotherapy. She loved "sweets." Dr. Shriber says, "We got rid of that love affair and a complete recovery was made."

Benjamin P. Sandler, M.D. related[17] a high intake of sugar to polio. He also stated that angina and other heart pains can also be traced to low blood sugar. Dr. Shriber,[16] stated that arthritis and rheumatism have responded to the simple formula of *No sugar*. Many patients, suffering with chronic fatigue, have regained noticeable energy by eliminating sugar from their diet. Dr. Abrahamson and Pezet[14] added allergies, hay fever, asthma, and rheumatic fever to the list of disturbances which responded to a sugar-free diet.

WHERE DO WE GET OUR SUGAR HABIT?

We are surrounded by commercial pressures to consume more and more sweets. We read commercial statements that sugar gives us "quick energy." Vending machines are placed in public buildings, in subways, in movies, dispensing candy, soft drinks, ice cream, chewing gum. . . . If cereal is not sugar-coated, the children may refuse to eat it.

There are also psychological pressures, which are not as obvious. Not long ago I lunched with an American who lives in Caracas, Venezuela. He began to dump sugar into his coffee cup. Evidently I was not wearing my poker face that day because he looked at me a little guiltily.

"I don't really know why I like so much sugar in my coffee," he said apologetically.

"Perhaps your mother used it as a reward food," I ventured.

"What do you mean?" he asked.

"There is no doubt that most people find a sweet flavor pleasant. Parents, knowing this, use it as a bribe. You were brought up in America. Didn't your mother say when you were young, 'Eat your carrots, dear, and then you may have your dessert.' "

"Something sweet is a symbol of a reward to you," I added. "It is a form of self-consolation too. If you feel sorry for yourself as you did when you were tired, or depressed, or ill as a child, you probably 'treat' yourself with 'goodies.' Your mother no doubt also offered you a piece of candy after you took your medicine."

The man said, "You know, I never thought of that, but it's true."

How many mothers do you know who lure their children with a lollipop? How many physicians give their young patients candy after each injection or pulling off of the bandage? How many schoolteachers reward their classes with candy parties at holiday times if the children have learned their lessons well? These are common situations, which can be changed with public enlightenment.

WHAT AROUT SUGAR SUBSTITUTES?

Natural sugars such as brown sugar, unsulphured dark molasses, and honey are considered preferable to refined white sugar because they possess some vitamins and minerals. Raw honey also contains enzymes. However, we are acting with wisdom if we use them sparingly, since they are all concentrated sweets.

Regarding artificial sweeteners such as saccharin and others, it is true that they may cut down on caloric intake, but they perpetuate that craving for sweets typified by the "sweet tooth." If you crave sweets, you should look upon it as a symptom of imbalanced body chemistry. Sugar, like alcohol, tobacco, and coffee, is habit-forming. Dr. Roger J. Williams[18] warned that sugar and alcohol become particularly habit-forming when the body is suffering from hidden hunger for vitamin-rich foods. The appetite, when fed sugar or alcohol, goes on a binge and doesn't know when to stop.

The more sugar you have, the more you crave. But fortunately, the reverse is also true. The less sugar you have, the less you crave. This has been experienced by many persons who have eliminated white sugar from their diet, and also restricted the natural sweeteners as well. The following account of Betty, a friend of mine, is typical of what others experience.

A member of Betty's family was diagnosed as a diabetic. In order not to eat sweets in his presence, Betty substituted fresh fruit or cheese instead of the former sweet desserts, for the entire family. After a few months had passed, she visited her mother. When a dessert was served which she had always enjoyed as a child, she could take only a few nibbles.

Her mother was disappointed. "You used to love it," she added. "I made it for you especially."

Betty replied, "You're putting more sugar in it than you used to."

"I am not," her mother replied indignantly. "I haven't changed the recipe one bit."

"Well," concluded Betty, "it tastes much too sweet to me now."

It is true that as you limit your intake of concentrated sweets, desserts which formerly seemed so delectable just don't taste as good as you remembered them. Ask anyone who has broken the "sweet tooth" habit. Nor is it difficult to break the habit, once you have embarked on a program of eating foods high in nutritional value. With the change, you also have the knowledge that nutritional foods will help you stay young longer.

If you find that you desire something sweet, the safest way to satisfy the desire is to eat fresh whole fruit. Sweet fruit juices or sticky dried fruit, if allowed to cling to the teeth, have been found[19] to break down tooth enamel, but fresh fruit acts as a natural toothbrush or detergent.

Dr. Roger Williams offered this bit of encouragement:[18] "Candy and alcohol furnish fuel only—no proteins, minerals or vitamins. . . . If we inherit a taste or acquire it from our family's habits, it can often be changed by experience."

8. Are Poisons Making You Old?

SOME TESTIMONY OF THE EXPERTS

"Today every man, woman and child has a retention of DDT in his fat tissue, and as this chemical is accumulative there is reason to believe that the amount will gradually increase as we continue to eat contaminated food,"[1] wrote William Coda Martin, M.D., an expert on the problem of pesticide residue and human health.

Dr. Malcolm H. Hargraves, internationally eminent blood specialist from the Mayo Clinic, testified that pesticides caused leukemia, aplastic anemia, Hodgkins disease, jaundice, and other blood disorders—many of which are fatal.[2] Dr. Hargraves warned that although a person may notice no observable symptoms after having been exposed to these economic poisons, he may be developing a marked degree of sensitivity so that subsequent exposures may precipitate disastrous consequences. "Our periodic spray program would be an ideal mechanism to precipitate such a disaster," he added.

Morton S. Biskind, M.D., who has made extensive study of the pesticide problem as it relates to human health, has described[3] many of the effects of these poisons on our bodies. The pesticides may produce a rise in blood cholesterol, an increase in the metabolic rate, an interference with the lymph systems; may create lesions, especially in the liver and kidneys; produce small hemorrhages at random throughout the body, but consistently on the heart, lungs, and brain; result in spinal cord congestion; cause disturbances in the central nervous system; produce hepatitis, cirrhosis of the liver and other liver ailments, poliomyelitis, cardiovascular difficulties, gastroenteritis, an increase in the incidence of heart disease and mental disease, and other conditions. As if this list isn't frightening enough, the pesticides are also vitamin antagonists, and are cancer-inciting. Dr. Biskind also found that DDT can produce many degenerative disturbances in various body organs, including the sex organs. Although this applies to both men and women, it is probably more dangerous for women because the female hormone, estrogen, enhances the storage of DDT. A normal healthy liver can regulate sex hormone balance within the body. But a damaged liver cannot, and DDT is known to impair liver function. This has been found to lead to increased pre-menstrual tension, retention of body water and uterine disturbance in women, and to diminish the libido, potency, and fertility in men.[4]

WHAT ARE THE SIGNS OF PESTICIDE POISONING?

I write this section with personal conviction, because *I* have experienced pesticide poisoning. When DDT was made available commercially, I was living in an area of America which is warm, humid, and populated by many types of insects with which I was unacquainted. Like so many other consumers, I failed to realize the potential hazards of the materials I purchased to exterminate the pestiferous flies, mosquitoes, moths, silverfish, and roaches. I sprayed and sprayed.

Later, when I moved to another part of America, I repeated my spray operations to maintain a well-appointed household. For a while, nothing much happened to me. However, there came a day of reckoning.

One morning I woke up feeling dizzy, a little breathless, weak, and somewhat faint. In due time, the effects wore off, and I almost forgot the incident. But the symptoms were repeated, more and more frequently. They seemed to occur whenever I was below par with some other temporary disturbance such as a cold, flu, or stomach upset. As I was to learn later, this pattern turned out to be significant.[5]

Meanwhile, my color began to change. I noticed a yellowish tinge to my skin. Energy waned. I experienced great fatigue. It was difficult for me to drag myself through a day of household management, shopping, and social life.

Then my vision began to dim. I began to feel like a character in a mystery novel who is being poisoned subtly, by minute doses. At last I sought advice from physicians. Doctors were as mystified as I. Different diagnoses ranged from virus to serious disorders, but examinations failed to show anything definite. It was even suggested that I might be suffering from an over extended imagination.

My weight continued to drop, attacks became more frequent, and I became more miserable. Finally, I was directed to a nutritionally oriented physician who pronounced his verdict: *Toxicity due to pesticide poisoning!* I sought out two other experts in the field, without revealing the diagnosis. Both corroborated his findings. Later in this chapter, I shall share with you the suggested treatment, which restored me to health. The material is valuable, because you too are being exposed to pesticides, willy-nilly, without your consent and without your knowledge. You, too, can learn to avoid the poisons in food which contribute to the aging process.

What other signs are experienced by people who are poisoned by the pesticides? Granville F. Knight, M.D., F.A.C.A. reported these:[7] "Symptoms resulting from the accidental ingestion of *undissolved* DDT include nausea, vomiting, diarrhea, nervousness, sore throat, joint pains, muscular twitching, impairment of sight and insomnia . . ."

Dr. Biskind added the following:[8] overwhelming fatigue and muscular weakness, peripheral neuritis, shooting pains, areas of skin hyperesthesia (sensitivity), sense of lump in the throat, severe emotional depression, vague fear, decreased vibratory sense, irritability, anxiety, apprehensiveness, great distaste for work of any sort, a feeling of mental incompetence, tremors, convulsions, and paralysis. Dr. Biskind commented: "It will be noted that many of these symptoms are typical of the so-called virus infections that have been widespread in the past five or six years."

Notice, too, that some of the symptoms are so vague that they might be ascribed wrongly to other ailments. Dr. Biskind believes that this happens in some cases. Physicians are not yet sufficiently acquainted with pesticide poisonings to recognize them. Notice, too that some of these symptoms might be ascribed wrongly to mental conditions.

WHAT DO THESE PESTICIDES DO TO OUR BODIES?

F. M. Pottenger, Jr., M.D. noted that poisoned patients who reported gastrointestinal upsets, followed one or two weeks later by respiratory symptoms, often showed mild jaundice and evidence of liver damage.[6]

There has been an enormous rise in hepatitis since the use of pesticides.[7] W. Coda Martin, M.D. reported: "It is now believed that the greater number of hepatitis cases may be caused by DDT sprayed on the leaves of green vegetables."

Dr. Knight[5] wrote: "It is conceivable that a rapid loss of weight in animals or humans storing large amounts of DDT in their body fat could release enough in the blood stream to cause symptoms of acute poisoning. Clinically this seems to occur . . .

"At this point it should be noted that fat is a living tissue which is continuously being broken down and rebuilt. . . . Therefore this type of storage in body fat is not like keeping butter in a refrigerator. Toxic effects on each body cell even with high dilution are not too remote a possibility."

In the light of the statements above, it became clear to me what my own disturbances had been. The stomach upsets, the "virus" or "flu" that I had experienced were apparently effects of the poison. In the process of losing weight, I was poisoned still further when the poisons which had accumulated in my fat were released into my blood stream.

You, too are probably accumulating pesticides in your body. The United States Public Health Service conducted a survey.[8] They chose 113 volunteers, and took fat samples. Of 111 of them, deposits of DDT were found in the fat, ranging from zero to 68 parts per million, with an average concentration of 6.4 parts per million. As little as three parts per million has been found to inhibit heart cytochrome oxidase. Two DDT handlers had 91 and 291 parts per million respectively.

DDT accumulates gradually in the body, and is stored in the fatty tissues especially. That is why the U.S. Public Health Service took the fat samples in the survey menioned above. Unless the physician is an expert at detecting pesticide poisoning, the symptoms themselves are elusive and masquerade as other diseases. DDT has a delayed action as a poison. For this reason, it has been termed a "biological time bomb." It may not flare up on first contacts. It is only when its concentration in the body has reached a high level that its effects become visible.

WHAT ARE THE SOURCES OF THESE POISONS?

Today, most foods reaching commercial markets contain pesticide residues. This was shown in an analysis of food samples served in restaurants. Each food was contaminated with DDT except coffee without cream. Note that this test was merely for one pesticide, DDT. If the analysis had been made on the same foods for other pesticides, many other residues might also have turned up. In some samples tested elsewhere, as many as four different pesticides showed up on single items of food. Little is known of the effect of one pesticide in combination with another, except[9] that the strength of the poison can be increased from ten to fifty times!

In addition to the pesticide residues on foodstuffs, many persons expose themselves to hazards in the use of household sprays. Poisons can be absorbed into your system through inhalation as well as through the blood stream from skin contact. Such sprays are used extensively in a variety of places: hotels, theaters, public buildings, shopping centers, restaurants, etc. We are exposed to many other environmental poisons of a similar composition. This increases the hazards. In the case of DDT and other chlorinated hydrocarbons, they are added to petroleum and petroleum distillates which also surround us in gasoline, diesel oil, fuel oil, dry-cleaning fluids, lubricants, paints, varnishes, thinners, solvents, etc. We surround ourselves with deodorants, moth fumigants, insecticides, fungicides, weedicides, rodenticides, miticides, nematocides, herbicides, bleaches, vaporizers, disinfectants, etc.[10]; all of which add to the hazards of a poisoned environment. Now, a new development threatens to increase the list enormously. Many articles, such as clothing, upholstery, mattresses, wallpaper, etc., are receiving chemical treatment.

"THERE OUGHT TO BE A LAW"

There *is* a law. In 1954, Congress passed the Miller Pesticide Amendment to the Food, Drug, and Cosmetic Act, establishing tolerances for pesticide residues on foodstuffs. But this Amendment offers only an illusion of control. Actually, what it succeeded in doing was to legalize the subtle mass poisoning that had already been going on. It does not prohibit the use of these poisons. It grants the Food and Drug Administration the right to determine just how much poison may remain on our foods. The levels are set generously high,[11] in favor of the pesticide manufacturers and farmers. The levels are set for tests on single items only. This is unrealistic, since we generally eat many items together, so that our intake of poisons is far greater. The levels themselves are based on amounts known to produce injury to experimental animals.

Even with this inadequate control, how effective is this legislation? If you read the monthly reports issued by Food and Drug Administration, "Enforcement and Compliance," you will discover a continuous number of seizures of foodstuffs which exceed even the generous levels of residue. In some cases, 44 per cent of samples tested exceeded tolerance levels. A top Food and Drug policing official disclosed[12] that one third of all manufactured dairy products sampled in the last few months (1960) contained noticeable amounts of pesticide. Warnings against DDT in milk have been issued repeatedly by the federal government, yet in 1956, 62 per cent of all milk samples tested by the Food and Drug Administration revealed DDT residue.

In order to enforce this law, only about three hundred inspectors patrol 96,000 places. Each inspector can thus visit each plant only once every five years. It is the modest objective of the Food and Drug Administration to be able to inspect *eventually* one per cent of the nation's food supplies.

Not only are the violations frequent, but the tolerances themselves offer only an illusion of protection. As early as 1953, a report was given to the Food and Drug Administration starting that heptachlor, a pesticide, could convert to heptachlor epoxide, which is even more toxic than the parent compound. But in spite of the existence of this report, heptachlor was given a tolerance rating. It was only after the public was exposed to heptachlor for more than ten years, that the tolerance level finally was reduced to zero on certain foodstuffs. In the case of Aramite, another pesticide, which is a known carcinogen, it remained with official sanctions for a period of months as a residue on foodstuffs, until at last the ruling was changed.

Today, there is no legislative control over the individual farmers using the economic poisons. On the contrary, they are given every encouragement by the United States Department of Agriculture, their state Departments of Agriculture, their agricultural colleges, experimental stations, and county agents. Research at some of these institutions is freqently financed by the pesticide manufacturers themselves. There is no possibility of compelling farmers to read labels, use the poisons according to directions, in the exact concentration, or at the proper time. These factors compound the dangers in a situation already fraught with dangers. "The case of the aminotriazole-tainted cranberries has not only caused a nation-wide furor, but it has flushed out into the open the problem of the harmful possibilities of an ever-growing number of chemically doused foods to which the consumer is now exposed."[13]

WHAT FOODS ARE TO BE AVOIDED AND WHAT FOODS ARE SAFE?

This is the advice of Granville F. Knight, M.D., who has specialized in pesticides in relation to human health:[5] "For all practical purposes DDT does not penetrate through the skin of fruits. However it becomes incorporated in the skin or rind and can not be removed therefrom by any washing method known. In spite of the loss of nutrients present in this layer, the only safe method of avoiding possible high contamination is to peel all fruit.

"Beef, chicken, lamb and pork may contain relatively large amounts of DDT if the fodder of these animals was contaminated with the substance. The use of corn husks, pea vines and other heavily tainted sources of livestock feed renders this possibility a real one. Fatty portions of meat contain the largest quantities.

"As has been mentioned before, milk, cream, butter and eggs may be serious offenders if contact with sprays or DDT containing food is adequate. Nor is margarine innocent. The vegetable fats in this product may be contaminated as a result of spraying or dusting."

Even when certain pesticides have their tolerance levels reduced to zero, the problem remains. Dr. Knight wrote:[5] "Benzene Hexachloride may no longer be applied to vegetables and fruits in California. However, where it has been used in the past the soil may remain contaminated to a decreasing extent for five years or more.

"It has taken a long time for the authorities to take such a step and now treated ground will not be free of traces of the chemical for eight or ten years more."

The residues in soils have been observed[14] to be absorbed into the plant tissue of edible portions of vegetables later grown on that soil. Carrots showed an outstanding tendency to absorb the insecticide. Carrots concentrated even greater quantities of the insecticide than occurred in the soil itself.

These are Dr. Knight's suggestions for safe eating to protect yourself against pesticide-contaminated foods[5]:

1 In an attempt to avoid contaminated foods, don't go off the deep end and develop malnutrition in the process.
2 Grow your own vegetables or purchase those grown without the use of toxic insecticides. (See #15 in the Appendix for sources.)
3 Do not use sprays or aerosol bombs in your house, or on your trees or shrubs, which contain these poisons:
    DDT
    Chlordane
    Lindane
    BHC
    Methoxychlor
    2-4-D
4 Do not eat in restaurants using vaporizers for fly control.
5 Peel fruits and vegetables. Scrape celery. Wash salad greens thoroughly.
6 Buy eggs from ranches which do not use DDT, BHC, or Chlordane in hen houses. These are the cumulative poisons. Milk, butter, and cream are safer than they used to be, but shift to another dairy if they use DDT, BHC, Chlordane, or Dieldrin by the "strip" method.
7 Moderate amounts of salad greens are fairly safe and desirable foodstuffs. Home-sprouted soy beans, mung beans, watercress and the like from untreated sources are excellent.
8 Lean meats and sea foods are usually free of such contamination.
9 Attention to other factors are of great importance:
    Adequate rest

Relief from tension and worry
Moderate use of coffee, alcohol, and tobacco
Exercise
A diet low in carbohydrates

10 Vitamin supplements such as the following:
Brewer's yeast
Vegex
Desiccated liver
Rice brain concentrates
Fresh wheat germ
Cod-liver oil or its concentrates
Kelp for trace minerals

TREATMENT FOR DDT AND RELATED POISONS

Dr. Knight advised the following[5], if you suspect that you are a victim of pesticide poisoning: "Repeated attacks consisting of upper respiratory infections and/or gastrointestinal symptoms together with loss of weight and marked fatigue suggest pesticide toxicity or allergy. In any case of this sort see your physician. Other causes may be operative.

"If he finds nothing wrong suggest the possibility of insecticide poison and ask for a blood count and liver function tests. Do not try to diagnose and treat yourself. You are almost bound to be mistaken and do more harm than good.

"In definite cases of DDT poisoning a strict diet together with other nutritional therapy will be necessary. Recovery is often discouragingly slow but sure once the cause has been recognized."

Morton Biskind, M.D., another specialist in this field,[8] states that there is no known antidote. Antibiotics merely antagonize the problem. The patient must be removed from all sources of the poison, whether it is in the food or in the environment. He must not visit places where spraying has been done. Foods which are most likely to contain pesticide must be avoided. Dr. Biskind advises:

Avoid butter fat in all its forms. DDT is soluble in fats.
Carefully peel fruits and vegetables.
Use fish, sea food, and skim milk as much as possible.
Eat lean meat only.

Eat only fats or vegetable oils you know are not contaminated.
Build up the liver through oral liver products and fat-dissolving foods.
Eat a high protein diet.
Use water and fat-soluble vitamins.

For additional suggestions, Dr. Biskind advised everyone to:

Stop eating pesticide-contaminated food.
Stop using pesticides, and stop your local agencies from using them.
Raise your own food.
Write your congressmen.

You may wonder if all the spraying of food is necessary, in view of its dangers. The answer is that it is not necessary. There are safe methods to control insect pests without resorting to poisons. There are many biological and physical controls which can be used, but they are not being utilized to any extent.[16]

The words of Dr. Harvey S. Wiley still hold true: "If poisonous substances are added to the food, they place a burden on the organs, the organs wear out prematurely, and the general vitality of the body is reduced, the aging process is speeded up, the body becomes susceptible to sickness and disease and death results inevitably. These changes occur whether they are measured, or not."[17]

9. Is It Safe to Eat?

At a recent Congressional Hearing, a homemaker testified:[1] "The shopper, really informed and looking for a plain food with nothing added or taken away, is like Diogenes with a lantern unable to find an honest man."

A number of volumes of Congressional Hearings have been printed, and at least three books written, which discuss in detail the problems of finding "a plain food with nothing added or taken away."[2] In addition to the hazards of pesticide residues on food, discussed in the last chapter, we are faced with the use of chemicals and drugs in foods, and the practice of extracting natural elements from foods.

If we examine the basic foods that go into our shopping baskets today, we will have a clear understanding of what is happening to them. Let's consider milk, recognized as a basic food. Pasteurization destroys its vitamin C and enzymes. Homogenization destroys its cellular structure. If it is bottled in clear glass, and exposed to sunlight, the Vitamin B2 is destroyed. If, instead, it is bottled in a waxed container, pieces of the wax are sometimes found in the milk. Wax is suspected as a carcinogen[3] (cancer-inciting). Frequently, the following items also contaminate the milk: formaldehyde, insecticide residue, strontium 90 and iodine 131 from radioactive fallout, penicillin from cows treated for mastitis, other antibiotics to keep the bacteria count low, etc. Recently it has been suggested to use milk as a vehicle for fluoridation.[4] After destroying some of the natural vitamins found in milk, the practice of irradiating the milk with synthetic vitamin D is found frequently. The hazards of this practice have been denounced by the American Medical Association and others.[5]

Meat, another basic food in our shopping basket, also receives many forms of tampering. About 80 per cent to 85 per cent of the meat that reaches commercial markets today has been treated with stilbestrol in feed.[6] Stilbestrol is a synthetic female hormone, an estrogen, which puts on weight in the form of fat and water. During the Delaney Hearings on "Chemicals in Foods," stilbestrol was declared to be an "economic fraud," as well a hazard. It happens to be cancer-inciting. Here is some of the research to date:

Four cancer researchers found[7] ". . . it has been learned from animal work that intermittent administration of very large doses of estrogens is far less effective in inducing tumors than is a continuing exposure to an extremely minute dose . . . It is a continuing exposure to extremely minute doses that is to be feared from the introductions of estrogens into the food supply.

"A prime consideration is the long period of time that elapses between first exposure to a carcinogen, such as diethylstilbestrol (stilbestrol), and eventual appearance of a tumor . . . a pound of meat, certified as free of diethylstilbestrol, could contain nearly 14 times the amount of this drug necessary to induce cancer by a daily dose to mice. . . ."

Dr. Christian Hamburger of Copenhagen reported[8] that some male scientific workers lost their beards, became impotent, and developed womanly breasts by breathing in tiny particles of female hormones, in the estrogen-manufacturing laboratories where they were employed. Dr. Wilhelm Hueper, of the National Cancer Institute, confirms that similar cases were found in England, Israel, and the United States.

Animals, too, have shown sterility resulting from exposure to this estrogen. Dr. Clive M. McCay, of Cornell University, reported:[9] "About three years ago, there was substantial failure in reproduction of mouse colonies. The failure coincided with the widespread use of stilbestrol in the feeding of beef cattle. Meat scrap was used to the extent of 20 to 30% in the diets of mice, dogs and rats. At present it looks as if this increase of estrogens in the mouse diet were the cause of the trouble."

In the late 1940's, mink ranches reported sterility of their mink. The animals had been fed the slaughterhouse scraps of chickens treated with stilbestrol.

Congressman John D. Dingell revealed at a Congressional Hearing[10] that there was a whole test series, at a state college in Montana, of rats that had become sterile. It was traced back to the rat feed that had been bought commercially. The food had been processed in a bin which formerly had been used to hold stilbestrol for cattle. Such is the potency of this drug!

The use of stilbestrol has been permitted to continue in the feed of animals, even after it was withdrawn as a pellet implant in poultry in December, 1959, because of the fact that, to date, no residue of the drug showed up in the marketed meat. However, recent research by three investigators from the University of Kansas[11] should require a reappraisal. They discovered that by using delicate radioactive tracer technique, stilbestrol breakdown products were found in the muscles, liver, kidneys, skeletons, and lungs of experimental rats. Also, Dr. Heuper posed the possibility[12] that stilbestrol which is not detected in testing may be present in some changed form.

Added to the problem of the stilbestrol in the feed of beef cattle, sheep, lamb, and hogs, is the problem of farmers not adhering to the law. Meat inspectors of the United States Department of Agriculture admit[13] that some animals are continued on feed containing stilbestrol less than forty-eight hours before slaughter. This violation enhances the hazards of exposure to the drug by consumers.

In addition to stilbestrol in meat, we are exposed to traces of antibiotics and tranquilizers, both of which are used currently. No one knows at present what the long-range effects of ingestion of these materials will be on the human system. And the pesticide residues, especially concentrated in the fat of the meat, adds another hazard.

Poultry, another basic food in the shopping basket, shows tampering as well. Although the pellet implants of stilbestrol have been withdrawn, stilbestrol is still present in poultry feed. In addition, have you ever seen the tag "Acronized" on the leg of a dressed bird? This fancy name is usually written near the words "Inspected by USDA" which may give some consumers the false impression that "acronized" is given some sort of hearty official seal of approval! It means that the bird has been dipped in an antibiotic bath, usually aureomycin. This practice will prevent spoilage for a long period of time. Instead of the store being able to keep the dressed bird only about seven days before spoilage sets in, it is able to keep it from two to three weeks. Although it is claimed that the antibiotics go out in the cooking, it has not been proven beyond the shadow of a doubt that some minute traces may not remain. Some states have banned the practice. Warning has been sounded that antibiotic treatment of food to prevent spoilage may be dangerous. Antibiotics kill bacteria which normally give us warning, by their smells or color, that food is putrid. The antibiotics will not kill molds or such food-poisoning organisms as salmonella, so that both of these can multiply unknowingly in antibiotic-treated foods, and the foods may still appear to be fresh.[13a]

Sea food, one of the least tampered of our basic foods, is also beginning to receive antibiotic treatment. This is especially true of sea food caught far out at sea, and prepared for freezing. In April, 1959, the Food and Drug Administration authorized the practice of using chlortetracycline on fresh-caught, whole, headed and gutted fish, shucked scallops, and unpeeled shrimp, up to five parts per million. The antiobiotic may not be used on processed sea-food products, including fish cuts, steaks, fillets, peeled shrimp, and shucked oysters.

The Journal of the American Medical Association reported[14] that although boiling fish removed an antibiotic, traces of it remained when the fish was fried. The British medical journal, *Lancet*, noted that fish containing antibiotic treatment had to be boiled at least thirty minutes before traces were removed. The comment was added that such long cooking also destroyed food value.

As our waters become more and more polluted by industrial wastes, detergents, pesticides, radioactive fallout and wastes, our fish are becoming contaminated by these elements. Dr. Bruce W. Halstead reported[15] that unknown toxic agents are contaminating fish and other sea food found in ever-widening areas of the ocean. At present it is centered in the mid-Pacific and West Indies. Three hundred and fifty species, mostly shore varieties, have been found to contain toxic materials. Several varieties of shellfish have been found poisonous due to a certain type of sea plant on which fish feed, according to the Army Biological Warfare Laboratories at Fort Detrick, Maryland. The poison will be noticed for a week or two, and then suddenly disappear. This coincides with the blooming of a sea plant, a microscopic plankton. In California, affected shellfish have been ocean mussels, Alaskan butter clams, and scallops from the Bay of Fundy. According to Dr. Edward J. Schantz, army scientist, the poison affects the nervous system of humans. It begins with a tingling of the lips and fingers, and may end with almost complete paralysis or even death. Disturbances from fish poisoning is confused at times with a variety of other ailments. In general, its symptoms may be gastrointestinal upset, tingling, numbness, aches in joints, weakness, and respiratory disturbaces, even hepatitis.[15a]

Eggs are also basic in our food basket. Joe D. Nichols, M.D. wrote:[16] "Most of the eggs consumed by the American people are infertile. The stores pay more for them.

This is because they keep longer. But I believe it to be a violation of the natural law to keep the rooster off the yard. Pretty soon you have no eggs or chickens either. The fertile egg has in it 'life'. It has been proved that a fertile egg has a nutritional value not found in infertile eggs." The infertile egg lacks vitamin E, but its keeping qualities of long shelf life is attractive to the shopkeeper. Many of the eggshells are treated to prevent rancidity, and many of the eggs which reach the markets are "cold-storage" eggs.

Butter is salted to give it a long shelf life. It is hardened with water, and colored with artificial colors which are subject to question. Cheese, when processed, may contain artificial coloring and flavoring, texturizers, modifiers, and a number of chemical additives of questionable value to the consumer.

Our fruits and vegetables are subjected to any number of practices which should come under close scrutiny. Here are a few. Weedicides are used to reduce weeding labor and costs. Giberellin, a hormone, is used to make fruit larger. Remember that this practice does not improve the nutritional quality of the food, only the appearance and weight. Dr. D. T. Quigley remarked,[17] "The natural orange is small, but its nutritive value is greater than the large 'cultivated' orange that boasts more market appeal."

Sweet potatoes are dyed red. White potatoes get anti-sprouting additives. Citrus fruit may be waxed, gassed, dyed, and fumigated. Cucumbers and turnips may be dipped in paraffin for long shelf life, yet wax is listed as a carcinogen. Lemons are washed in a chemical dip to reduce tip-end decay. Grapes are gassed by the carload or truckload before shipping, to prevent mold. Many canned fruits are put through a chemical dip to remove the skins. Asparagus and other vegetables are washed with a mold inhibitor. Nuts are bleached for uniformity of color. Peanuts are salted chemically in the shell. This is a fair sampling of basic commodities.

When it comes to prepared foods, the skills of the chemists' laboratories are called into full play. Dr. Forest C. Jarvis, M.D. wrote to me,[18] "Repeatedly I am told by Vermonters not to eat what they call 'civilized foods.' They mean by this the packaged cereals, white sugar, and processed foods sold by grocery stores. They tell us to eat as little food as possible that comes out of a factory."

Many of the practices result from the skills of the food technician. William Longgood described[19] him as "a wizard who can beguile, deceive and defraud the housewife by making her think she is getting something she isn't. His alchemy can make stale products appear fresh, permit unsanitary practices, mask inferior quality, substitute nutritionally inferior or worthless chemicals for more costly natural ingredients. These chemicals, almost without exception, perform their mission at the cost of destroying valuable vitamins, minerals and enzymes, stripping food products of their natural life-giving qualities." Here are a few examples.

Two chemists are helping bakers to economize on eggs by suggesting the use of methyl cellulose and a little extra milk "with palatable results" in prepared dry cake mixes.[20]

There was a time when ice cream used to be made from milk or cream, eggs, and sugar. In this synthetic era, the following is an analysis of what ice cream may contain:[21]

"Piperonal is used in place of vanilla. This is a chemical used to treat lice.

"Diethyl glucol, a cheap chemical, is used as an emulsifier instead of eggs. Diethyl glucol is the same chemical used in anti-freeze and in paint removers.

"Butyraldehyde is used in nut-flavored ice cream. It is one of the ingredients in rubber cement.

"Amyl acetate is used for its banana flavor. It's also used as an oil paint solvent.

"Ethyl acetate is used to give ice cream a pineapple flavor. It is also used as a cleaner for leather and textiles and its vapors have been known to cause chronic lung, liver and heart damage.

"Aldehyde C17 is used to flavor cherry ice cream. It is an inflammable liquid which is used in aniline dyes, plastic and rubber."

Here is the label from a commercial dessert topping, a substitute for whipped cream. You decide how nourishing it can be:

"Contains no milk or milk fat. A pasteurized blend of water, hydrogenated vegetable oil, sugar, vegetable protein, sorbitan, monostereates, salt, stabilizers, vanilla, artificial flavor and color. Charged with Nitrous exide and Carbon Dioxide."

The following is a label for a fruit drink. As a consumer, what would your reaction be, after reading its label?

"Contains sugar, citric acid, gum arabic, carboxymethyl cellulose, sodium citrate, calcium phosphate, Vitamin C, hydrogenated vegetable oil, natural and artificial flavors (includes butylated hydroxyanisole, a preservative) Vitamin A and U.S. certified color."

It should be drawn to your attention that one of the above-mentioned ingredients, carboxymethyl cellulose, is capable of causing cancer in experimental rats, according to Dr. Wilhelm Hueper of the National Cancer Institute.

Indeed, these examples should make us become label-conscious. If you have a spare hour to spend, you will have an interesting experience by strolling up and down the aisles of a supermarket, reading labels on the shelves carefully as you go along. You will not be tempted to place many items in your shopping cart!

One label-conscious consumer related the following story to me. She had received a sample product which had been placed in her rural mailbox. After reading the label, she returned the sample to the manufacturer with the attached note: "I am returning your sample. After reading the ingredients, I decided that none of them were fit to eat. I was afraid to pour the contents of the box down the sink, for fear that it would harm the septic tank. I was afraid to put the contents on the compost pile, for fear that it would upset the bacterial action. I did not want to bury it, for fear of ruining the soil. I could not toss it on the town dump because I did not wish to harm the innocent birds or small scavengers. I could not throw it into the woodfire because I feared a possible explosion. Therefore I have only one recourse left—to return the product to you."

HOW SERIOUS IS THE PROBLEM?

The Food and Drug Administration tested twenty types of food additives, totally from 800 to 1,000 different chemicals and seventeen types of contaminants, including estrogens and antibiotics. Many were found to be cancer-inciting.

Wilhelm C. Hueper, M.D. Chief of the Environmental Cancer Section of the United States Health Services, National Cancer Institute, lists[21a] some of the chemicals capable of causing cancer which have been added to foods, drugs, and/or medicines. They include:

A group of green dyes (light green SF) which have been used to color:

candies
essences
cordials
biscuits
cakes
jellies
maraschino cherries
frozen desserts

Another group of dyes are yellow (Yellow AB and Yellow OB). This group contains Beta-napthylamine, which has been responsible for about 2000 cases of bladder cancer in dye and rubber workers. The coloring has been used in:

butter
margarine
baked goods
lipsticks

Chemicals known as surfactants, anti-foaming agents, emulsifiers, and dispersants are also suspect. They have been used with:

candies
soft drinks
dill pickles
vitamin preparations
ice cream
cream whip
cakes
bread
rolls

Polyoxyethelene, which had been proposed for addition to bread and rolls, was found to cause bladder cancer in experiments with rats.

Another dangerous type of chemical, diethyline glycol, has been used in:

marshmallows
pastilles
confections
ice cream
jelly-like candies
cigarette tobacco
shredded coconut
chocolates

B-hydroxyquinoline, a preservative, was used in cottage cheese as a coagulator, and also used in contraceptives and rectal suppositories. It was discovered that this chemical caused cancer when it was implanted in the bladders and vaginas of mice. The use of it has been banned.

A paraffin substance and petroleum-like material can also cause cancer, says Dr. Hueper. It has been found in wax containers or wrappers for:

milk
margarine
chewing gum
butter
cheese
cucumbers
cream
on skins of citrus fruit

The synthetic mucilage carboxymethyl cellulose is used as a stabilizer in:

processed cheese
French dressing
salad dressing
ice cream
sherbets
ices
ice milk
chocolate milk
chocolate-flavored beverages
pressure-dispensed whipped cream
syrups for frozen products
as a body agent in beverages and canned fruit sweetened with non-nutritive sweeteners

Arsenicals, found in foodstuffs as a pesticide residue and as an additive of animal feeds of poultry and livestock, is carcinogenic.

Estrogen substances, such as stilbestrol, used to promote fattening of livestock and poultry, is a carcinogen.

Chlorinated hydrocarbons (such as DDT, etc.;), present as residues on food, are carcinogenic.

Polycyclic aromatic hydrocarbons with carcinogenic properties are found in soot adherent to smoked goods, or generated on foodstuffs by excessive heat during roasting or grilling. Dr. Hueper explained that due to soot and incomplete combustion, carbon products are current in smoke. An article[22] presented information on this problem. It described new and improved techniques of charcoal cookery by which carbon residue on food may be eliminated.

Radioactive substances may either attach to the surface of foodstuffs from radioactive fallouts or may enter plants and animals through absorption from contaminated water and soil. These are also carcinogens.

Wrapping and coating materials composed of polymerized carbon and silicon compounds may be carcinogenic. Contaminations from these materials are classified as "unintentional additives." Detergents also fall into the category of "unintentional additives." Detergents are direct chemical irritants of petroleum derivation which may act as co-carcinogens.

Dr. Hueper claims that in addition to these chemicals classified as carcinogens, there are others which are not carcinogenic in themselves, but in combination with other substances, *may* become carcinogenic. The United States Public Health Service estimates that if untested substances were tested for carcinogenic properties on the basis of past results, *about 25 per cent of the substances now in common use would turn out to be carcinogenic!*

The recent study,[23] "The Role of Certain Chemical and Physical Agents in the Causation of Cancers," by G. Burroughs Mider, M.D., Associate Director in Charge of Research at the National Cancer Institute, concurred with Dr. Hueper's statements, as well as USPH's findings.

ARE ALL THESE ADDITIVES REALLY NECESSARY?

Today, we have fewer and fewer farmers producing more and more food for a population that is largely urban. "One hundred years ago a farmer in this country produced enough food for himself and three other people. Thirty years ago he produced for himself and nine other people. Today he produces for himself and twenty-five others. Today's agricultural production is being accomplished by 7.5 million farmworkers. This is 33% fewer than there were only 20 years ago, and this group is feeding a population more than 33% greater than at that time."[24] This accounts for agricultural practices which stress quantity production. It is true that this has been made possible by chemicals in agriculture such as chemical fertilizers to boost yields and pesticides to control damage to crops. Food processing, by giving long shelf life, has made it possible to ship and store foods in these times of large urban communities. However this is not to condone these practices as beneficial to health. The food industry has profited enormously by increased production, little spoilage, and assembly-line uniformity of foods made possible by this chemical approach. But the consumers have lost much biological food value. The inclusion of additives has served a useful "function" to industry, but rarely to the consumers. Geoffrey Martin, M.D., Executive Secretary of the Kansas State Board of Health, phrased[25] it as follows: "The whole controversy over chemicals in foods can be boiled down to a single, simple opposition of interests. Industry, business, manufacturers are interested in adding chemicals to foods because this results in commercial advantages of one type of another. The consumer is interested in having as few chemicals as possible in foods, because he is chary of eating slow-acting poisons."

If we examine the additives from the point of function to the consumer, most of the additives are unnecessary. They provide eye appeal, or taste appeal, or uniformity, but most of them have no nutritive value. We have been conditioned, through the food industry's untiring campaigns of advertising, to demand assembly-line food. We have come to abhor the sight of a scab on an apple, or the presence of a worm inside of it. Instead, we have come to accept a number of poisonous coatings of spray on apples as a better bargain. We have been conditioned to demand brightly colored oranges, even when fully ripened ones may be green. We pay for this demand with the addition of a questionable dye.

"No one will buy a frankfurter if it looks grayish and dull," complained a meat executive. Instead we prefer colorings which may be deleterious to our bodies.

"We have to have dyes to give cheese its rich golden color," added a dairy producer.

"The soda pop industry would be ruined if we can't add coloring to make it look attractive," said a soft-drink manufacturer. Thus it goes. Eye or taste appeal gives commercial advantage.

The motivational probers[26] have discovered that shoppers buy the container instead of the food inside. The pretty picture of the frosted cake or the steaming bowl of soup decides our choice rather than the listing of ingredients. One study showed that women given rose-colored glasses to wear before making the rounds in the supermarket, were influenced by the color in their purchases.

DO THE FOOD LAWS PROTECT US ADEQUATELY?

The enormous burgeoning forth of chemical additives in foods in recent years has provoked a series of Congressional investigations, resulting in amendments to the original Pure Food and Drug Act in 1906. The 1958 Amendment to the Food, Drug and Cosmetic Act had two good features which favor consumer protection.

First, provision is now made that the manufacturer is responsible for submitting data, upon request, regarding the safety of any additive in food. This shifted the burden of proof of harmfulness from the Food and Drug Administration to the burden of proof of harmlessness to the food industry, where it rightly belongs.

Second, the Amendment includes the Delaney anticancer clause. This provides that any substance, found to be carcinogenic in any amount, however small, to man or test animal, by various routes, be excluded from foods. It was this clause that made it mandatory for Secretary Arthur S. Flemming to seize the amino-triazole-tainted cranberries when they were shipped across state lines. It was also this clause which was responsible for the caponettes to be withdrawn, once traces of stilbestrol were discovered in the birds. The new 1960 Color Additive Amendment also incorporates the Delaney anti-cancer clause, despite the fact that the clause was fought bitterly by segments from the food, drug, and cosmetic industries.

However, the advantages of the new legislation have been weakened considerably by certain concessions to industry. Specific provision for the testing of chemicals for carcinogenic properties has not been made. The necessity of it becomes apparent in consideration of the following: There is no relationship between the toxicity of a substance and its ability to produce cancer. The smallest cancer-inciting dose is lower than the smallest chronic toxicity dose. In ordinary toxicity tests, the cancer-causing properties may be missed easily. It is largely by chance, and only rarely, that these tests for chronic toxicity have shown the cancer-inciting properties of chemicals. Specific provision for the testing of chemicals for carcinogenic properties would have been quite costly to industry.

Also, industry has discovered that newly refined testing methods are turning up traces of carcinogens where they were not discovered before. Companies fear they might pour a million dollars into research on a product, only to discover that it contains an almost imperceptible amount of a cancer agent. One major industrial company discontinued completely its agricultural research farm as a result of the uncertainty of the future of research in its field.

Another provision of the 1958 Amendment was also framed to accommodate industry. This is the concept of "safe amounts" of toxic materials. This relaxation of the ban on toxic materials indeed may succeed in opening the floodgates for additives. During the period of 1940 to 1956, some 25,000 chemicals were considered for use in foods. Now, theoretically, any or all of them may be used, provided that the amount found does not produce apparent harm in laboratory animals.

Industry was further accommodated by liberal extensions of time for testing programs, and these periods may even be extended. Meanwhile, consumers continue to risk exposure to questionable substances while the substances are being tested. One of the stated purposes of the additive amendment was "to advance food technology by permitting the use of food additives at safe levels." Thus is industry protected.

The new amendments should not lull us into a false sense of security, for we are still not adequately protected. This was pointed out in an article:[27] "Not all harmful effects can be detected by present day methods, especially in short term tests, but they might show up in the second or third generation. . . . It is possible that by carrying the tests through several generations, some chemicals now considered safe, would be found not to be safe. The obvious conclusion is that we should use foods in as nearly their natural state as possible with no chemical additives."

WHAT CAN WE DO?

We can support organizations and movements which are active in furthering consumer interests.[28] We can write letters to our Congressmen and to the Food and Drug Administration, urging that the loopholes of the legislation should be closed. Specifically, the Delaney anti-cancer clause should be kept, and strengthened. Tests for carcinogenic properties should be made mandatory. The concept of "safe amounts" should be rejected. Nonnutritive chemicals serve no purpose to the consumers, and should be eliminated.

We should agree with the testimony of William E. Smith, M.D. a cancer researcher, who said[29] to Congress: "I submit that the adulteration of food with new chemicals is not a right, but a privilege that should be permitted only when there is real need."

Also, the testimony of William Coda Martin, M.D. before the same Congressional hearing, is worthy of repetition:[30] "Many of these chemicals although apparently non-toxic, have no nutritional value and do not serve a useful purpose for the consuming public. Their continued use, therefore, constitutes a 'calculated risk' to human health, if not to life itself."

We can educate ourselves to buy foods, not the pretty packages. We can learn to withstand the pressure appeals of advertising and the motivational experts. We can look beyond the colorful foil, the cellophane, and the plastic double-duty container. We can learn to read labels, especially when they are in fine print, concealed under the special offers, or written in orange print against yellow paper! We can learn to reject the artificially colored and artificially flavored in favor of the natural-colored and natural-flavored. We can demand dried fruit that is sun-dried rather than prepared with sulphur dioxide. We can choose natural brown rice rather than polished white rice. Indeed, as consumers, we have a powerful weapon, if we will learn to use it: the power of purchase. Shopkeepers will stock "plain" foods, with nothing added nor taken away, when sufficient numbers of us demand it.

What else can we do? The Food and Drug Administration cannot properly police food with limited budget, manpower, and equipment. Yet their responsibilities continue to increase. In a frank statement, Commissioner George Larrick admitted[31] that in the food and drug field, provisions for rule making outdistance provisions for rule enforcing. He admitted that new drugs, antibiotics, and pesticides sometimes are introduced without the Food and Drug Administration being authorized to withhold approval until they have sufficient funds and staff to deal with the extra enforcement burden. Yet every time a new approval is given for a poison employed on food, the enforcement load is greater. It may be one to several years before the department gets sufficient funds and manpower to do an effective job of enforcing the new rule.

"Instead of the 1,000 Food and Drug Administration inspectors deemed necessary to cover the 85,000 U.S. food, drug and cosmetic establishments there are only 400, of which only 15 are available on any day to check the entire food supplies of the U.S. for excessive pesticide residues. It would take five years to make one round. There are only 122 scientists to carry out tests on the hundreds of new chemicals continually being developed. The present budget for the Department is ten million dollars a year, or about six cents per person annually. An Advisory Committee studying the problem concluded that forty million dollars for the Food and Drug Administration would do the job effectively. This would mean about twenty-five cents per person to guard against poisons in food. Even if the funds were available immediately it would take *two years* to check up on testing of foods now on the grocer's shelves.[32]

Another serious problem concerns the suppression of truth, especially by experts, when their findings might be damaging to vested interests. Such pressuring, coercion, loss of position, and smearing has been reported at Congressional hearings.[33]

A physician I know, who is successfully returning thousands of patients back to healthful living through a nutritional approach, informed me that he was attacked by a large moneyed firm which processes food. This doctor had advised his patients against certain foods which he considers harmful. Research has reinforced his beliefs.

A respected university professor called my attention to the fact that a "nutrition" group with members in well-known universities, are stating that several food products, scientifically proven worthless, are actually good for you. Said the professor to me, "You might be interested to look on the back pages of their publications, to see who supports this group financially." I did. I found that companies manufacturing these fast-selling foods were the ones listed. As a matter of fact, if the book you are presently reading, which is attempting to tell the truth, is attacked, seek out the source of the attack!

We should examine the laws of other countries, in order to improve our own. Switzerland has had a law for fifty years that prohibits chemicals without authoritative sanction. Today Swiss flour contains none of the additives commonly found in ours. France has placed rigid regulations on food additives. No substance may be added to food until it has been proved harmless as a result of long experimentation.

According to two observers in the U.S.S.R.[34] artificial flavors and colors are prohibited in food products. "Chocolates are made from chocolate; fruit candies are made from real fruit syrups; soft drinks are mixed with natural extracts and colors." These laws are rigidly enforced. Russia has no synthetic chemical industry supplying foods with artificial flavors or colors, nor is anyone allowed to establish such a business. The food manufacturing is supervised by scientific examiners and inspectors. The authors of this report state that the Russian rate of cancer is going down, while ours is going up.

Remember that the food laws we have today, as well as recent amendments, have only been achieved through effort. According to Congressman James J. Delaney, one of the foremost champions of the consumer, "It was the individual consumer writing to his own Congressman, who was most important in securing passage of the amended bill."[35] Letters should be written to Congressmen, calling attention to the need for more adequate consumer protection. Letters should also be directed to the Director, Bureau of the Budget, Washington 25, D.C. calling attention to the need for additional funds for adequate enforcement of food, drug, and cosmetic legislation. Since the

Budget Bureau is an arm of the White House, send a carbon copy of your letter to the President. The effort of many individuals can prove effective.

10. What Else Ages Us?

"Man is rapidly making the world such an unhealthy place to live in that a whole new approach to public health problems may be needed.

"A major new division in the U.S. Public Health Service is being planned to deal with the poisoning of the air, water and food supply that has accompanied 20th Century progress," Surgeon General Leroy Burney says.

"The size of the problem and the inadequacy of existing procedures for coping with it were underscored at a recent hearing before a House Appropriations Subcommittee, which released its report today.

"The principal areas explored by a dozen expert witnesses were water and air pollution, radiological hazards, traffic accidents and the use of chemicals in food, drink and agricultural processes.

"Their testimony included:

The United States is now holding 65,000,000 gallons of deadly radioactive waste and by 1980 will have accumulated 65,000,000 more gallons. It hasn't the slightest idea how to dispose of it safely and is just hanging on to it.

Where 2,000,000 people got their drinking water from streams in 1900 and 24,000,000 dumped sewage into them, today 100,000,000 depend on the same streams for their water and 120,000,000 are dumping sewage into them.

The number of automobiles has risen in 50 years from 1,000 to 70,000,000. In the only city where the situation has really been studied—Los Angeles—it has been found that 3,400,000 pounds of hydrocarbons are being poured into the air each day."[1]

The above newspaper account is a good introduction to the growing problem of environmental pollutants, which contribute in aging us prematurely.

TOXIC MATERIALS IN WATER

The United Public Health Service stated[2]: "The problem of keeping enough water clean enough to protect the public health has become enormously complex, difficult and urgent." Indeed it has, if we examine the various toxic materials which find their way into our water supplies today, both unintentionally and intentionally.

The Robert A. Taft Sanitary Engineering Center at Cincinnati, Ohio, conducted by the United States Department of Health, Education, and Welfare's Public Health Service, is the foremost authority on water-pollution problems. Dr. Bernard Berger, chief of water research at this Center, admitted[3]: "We're endangered by synthetic living and pushbutton processing—by the increased flood of chemicals through home, farm and factory, by disease-spreading viruses in body wastes. Every day, from toilets, bathtubs, sinks and household machines, we flush 2.5 billion gallons of raw or partly treated sewage back into our rivers, and lakes, polluting them with viruses and detergents. Daily, our mills, mines, refineries, hospitals, mortuaries, packinghouses, tanneries, factories, and chemical plants void some six billion gallons of water bearing acids, metals, oils, radioactivity, fats, hide, bristle and thousands of chemicals, many unknown and some poisonous."

Dr. Berger and his researchers have identified about one hundred petrochemical compounds—insecticides, herbicides, solvents and detergents—as water pollutants, but believe that for every one identified, hundreds of others may be missed.[2] The new contaminants are difficult both to identify and to control. Current methods are unsuccessful in removing them from the water.

The increased population of the country has strained the outmoded, inadequate sewage facilities. Disposal of raw human sewage has become a critical problem in some areas. Seventy new viruses that are capable of carrying disease have been identified in the past fifteen years in the feces of man. Their role in water pollution is little known, but research by the New York City Department of Health revealed that the ordinary chlorination period was too limited to kill some strains of the viruses. Early this year fourteen out of twenty-two large U.S. cities had tiny worms called nematodes in their tap water. Nematodes ingest bacteria and viruses. Chlorination does not kill them.[3]

"The fact that there are no reports of waterborne outbreaks," reported Clarke and Chang in the *Journal of the American Waterworks Association*,[3] could be due to "lack of information on the clinical illnesses that many of these viruses produce. They may masquerade as colds, upset stomach and diarrhea." To which, Bernard B. Berger added,[3] "It is possible also that the illnesses produced are so mild that they are not reported to the health authorities."

Detergents are also classified as water pollutants. Detergents have now captured more than three-quarters of the cleansing market from soap. But unlike soap, they do not break down in sewage treatment plants. They give water an oily, fishy taste, and foam at the tap. The phosphate in them fertilizes algae, which succeeds in clogging waterworks, choking streams and shore waters. The Taft Center found traces of detergents in *all* surface water examined.[4] Detergents are found to make a complete circle from the kitchen sink, down the drain, into the sewage, through the ground, and back up into the water tap. Filters or other water-purification methods do not help.[5] You can test your own water supply. Watch for foaming at the tap. This is a sensitive test which will reveal concentrations of detergents as low as 0.8 parts per million. It may also be a warning signal that other pollutants may be in the water.[5]

If you use a water softener, make certain that it is attached to the hot water only. Use the cold water only for drinking purposes. Dr. Royal Lee warned,[6] "The city of Des Moines, Iowa, had one of the lowest rates of incidence of polio. After the installation of water softening equipment at the city water works, the polio incidence went almost to the opposite extreme. Many physicians have discovered the shortcomings of softened water by noting that softened water drinkers have a reduced state of vitality."

Among the new contaminants in water are radioactive wastes. According to figures released by United States Department of Health, Education, and Welfare, persons were using water in parts of Colorado and New Mexico in 1959 "that ranged from 40 to 160 per cent above maximum permissible levels of radioactive content."[7] The contamination came from a uranium mill which was dumping radioactive waste into the water. In addition to government installations and uranium mines and mills, laboratories, hospitals, and many industrial plants use radioactive materials, and must dispose of wastes.

In West Germany, during January, 1959, the radioactivity in rainfall was sixty times the maximum safe limit for drinking water set by the European Atomic Agency. No official warning was issued against drinking the water, for fear of spreading alarm. When a representative of the West German Atomic Ministry was asked whether he considered the rain water fit for human consumption, he replied, "I would not recommend drinking it."[8]

Although the practice of dumping radioactive wastes into the ocean may not disturb our source of drinking water, it does create the problem of contaminating our food from the sea. The eminent Swiss scientist, Professor Auguste Piccard, warned[9] that radioactive waste buried in the deep sea could contaminate the entire body of the water around the globe. Up to the present, we have disposed of twenty-four thousand drums of low-level wastes in the Pacific Ocean and thirty thousand in the Atlantic Ocean. Although we are given reassurances by authorities that the contamination is well below the threshold of danger, in time this practice may seriously contaminate sea life and ultimately human life. The high-level wastes are toxic, corrosive, and highly radioactive. They can never be considered as dead storage. They require meticulous instrumentation and constant observation.[10] One woman, by her unflagging efforts, succeeded in arousing a good portion of the citizenry to the dangers of dumping radioactive wastes into the oceans.[11] Dr. Chauncey D. Leake recently warned[12] that the dumping of radioactive wastes in the sea was "the most serious potential danger to our long range health as far as water pollution is concerned." He charged that the concrete containers used for radioactive wastes would go to pieces in sea water and release their contents. "Out of sight, out of mind is not a very satisfactory way to handle this problem."

As if the number of unintentional contaminants in our drinking water were not great enough, there are also a few intentional contaminants that some would add! Sodium fluoride is one. The problem of adding artificial fluoride to public drinking waters has long been a controversial subject, on which a great deal has been printed.[13] I shall endeavor to present some recent findings from scientists who have been conducting laboratory research.

There is the work of Robert S. Harris, Ph.D., a nutritional biochemist working at M.I.T., Department of Food Technology. Part of his testimony before a Congressional Hearing on Chemicals in Foods and Cosmetics was recorded as follows.[14]

> "... there is plenty of evidence to indicate that flourine in this amount (1 part per million) or slightly more interferes with enzyme systems, and these enzyme systems are involved in the growth of bones, and in the functioning of nerve tissue and so forth. . . ." "There is some evidence in animals that with certain disorders, especially kidney diseases, fluorine is more toxic than in the normal animal. I think it is important to know whether people with the diseases with which humanity is usually inflicted are more sensitive to fluorine than the people who are healthy. Until we know about that, I think we are on dangerous ground in fluorinating the water supplies."

He adds:

> *"Our data indicate that there may be more tooth decay in a human population group because of differences in the composition of the food and that this has nothing to do with fluorine. That is one of the reasons why I feel we should be careful in drawing conclusions on the basis of fragmentary evidence."* (emphasis mine)

N. Philip Norman, M.D. wrote:[15] ". . . One wonders why certain individuals and organizations are interested in imposing this mass medication upon the public, despite the numerous studies which have shown that many foods contain significant amounts of fluoride in natural combination." (For one explanation see Appendix 15a)

Another aspect of the fluoride hazard has turned up in connection with Strotium 90. James G. Kerwin, D.D.S. reported[16] that Strontium 90 combines with fluorine. Together, they form an extremely insoluble compound which eventually becomes deposited in the bones. The presence of the fluorine slows down the rate of excretion of Strontium 90. Therefore the presence of fluorine exposes the body to more internal radiation than if it were not present. Dr. Kerwin concluded: "Consumption of water that has been artificially fluoridated may increase the danger of Strontium 90 to man and animals."

Ionel Rapaport, a researcher at the University of Wisconsin, suggested[17] that there may be a relationship of fluoridation and Mongolism. Almost twice as many Mongoloid births have taken place in Illinois and in cities in other areas where fluoride content of the water is high, as in cities with a low fluoride content in the drinking water.

According to a report,[18] a diet rich in bone meal protected rats from some fluoride accumulation in the bones. Presumably bone meal will also aid human beings. It is especially important to obtain bone meal which is free of Strontium 90, in view of Dr. Kerwin's report cited earlier. At least one commercial company[19] derives a calcium supplement from deep-mined limestone which presumably is uncontaminated by Strontium 90.

Joe D. Nichols, M.D. wrote:[20] "The best scientific authorities, the men who have really studied and know most about artificial fluoridation, are *violently* opposed to it. The American Medical Association at their last meeting in Seattle, Washington, passed a resolution asking for a study to re-evaluate the whole subject of artificial fluoridation. Cases of chronic fluorine intoxication are being reported in cities where artificial fluoridation is being used."

Clive M. McCay, Ph.D. wrote:[21] "There is but one purpose of a water supply—to provide pure water. The solution to the fluoridation problem would seem to be:

1. Keep water for water supply.
2. Provide fluoridized salt, sugar or tablets in the grocery store.
3. Take the propagandists who present only one side of the question off the tax rolls."

TOXIC MATERIALS IN AIR

Daily, we have multiple exposures from many fumes and vapors which make up the smells and smogs of much of our modern life. There are tons of hydrocarbons released into the air daily by motor vehicles. Added to this is the soot from industrial wastes, smokestacks, incinerators, radioactive fallout, etc. Air pollution, now recognized as a serious problem, may become disastrous, unless controls can soon be made effective. This is the prediction[22] of Richard A. Prindle, chief of the Public Health Service's Air Pollution Medical Program. Reporting to fellow-scientists at a meeting, Dr. Prindle said he believed that the sudden, catastrophic kind of incident, such as the Donora disaster, is less worrisome than the more subtle, long-term widespread breakdown of health by poisoned air.

Richard Schiffman and Emanuel Landau, analytical statisticians from the Department of Health, Education, and Welfare, reported[23] that many deaths from heart disease and cancer may be related to air pollution. This statement was based on a study of 163 standard metropolitan areas that were ranked in terms of potential air-pollution levels. Those with the highest air pollution had a greater number of deaths from various diseases than the national average. Chronic rheumatic heart disease, arteriosclerotic heart disease, including coronary and non-rheumatic chronic endocarditis, were three that showed mortality increase in twenty standard metropolitan areas studied. Similarly, cancer of the esophagus and stomach caused more deaths in twenty metropolitan areas with high air pollution than the national average, while cancer of the trachea, bronchus, and lung showed comparable mortality increases.

At a special symposium on air pollution held by the American Public Health Association, Dr. Robert Lewis, head of the Division of Biostatistics of the Tulane University School of Medicine, and Dr. Albert Roberts, of the Public Health Service's air pollution medical program in Washington, stated[24] that the evidence "indicates that the continuing debilities of man may be incited or aggravated in one way or another by contaminant substances to be found in the air we breathe." They said that specific factors in the way polluted air contributes to human disease must be investigated. "We must be specific in identifying the disease process, and we must be specific in identifying the etiologic agents, in order to develop effective control devices."

Dr. Wilhelm Hueper related[25] air pollution to lung cancer. "We have statistics from several highly industrial countries. The farmer smokes practically as much as the city folks, yet have only half the lung cancer. In England, we found the highest lung-cancer rate in London and the industrialized Midlands."

Not only has air pollution been related to human ailments, but crop damage has also been reported.[26] Agricultural and horticultural crops in Bergen County, New Jersey, were injured and in some cases were made unsalable by the presence of foreign gases in the air. Damage could not be traced directly to any particular industry. It was stated that any burning process, including exhaust gases from motor vehicles, home oil burners, factory exhausts, and open burning in dumps sent injurious oxidants into the air.

TOXIC MATERIALS IN SOIL

Many of the materials which contaminate the water and air, also contaminate the soil. Yearly, insecticides in their solvents are being sprayed or dusted over our soil at the rate of two to three billion pounds. Remember that this is in addition to the accumulations of previous years. Some of the chlorinated hydrocarbons have been in use for about fifteen years. They do not break up readily. In certain soils more than 90 per cent of the original application of DDT has been recovered after seven or eight years. Other insecticides have been recovered as long as eleven and twelve years after original application. After five years of orchard spraying, 100 to 175 pounds of DDT remained in the debris.[27] It was found at the rate of 13 to 105 pounds per acre in the surface three inches. Another study[28] revealed the accumulation of debris under elm trees that had been sprayed. After several years of DDT application, 137 to 194 pounds per acre were noted. Also, some of these insecticides have been found to convert to other compounds, which are even more toxic than the parent compound. Aldrin oxydizes to Dieldrin. Heptachlor may convert to heptachlor epoxide. Radioactive fallout is still another contaminant of the soil.

UNDERSTANDING RADIATION HAZARDS

Scientists tell us that there are two kinds of radiation: "background" or natural radiation substances occurring in rocks, soils, food, cosmic rays, etc.; and fallout which results from nuclear explosion and produces radioactive dust in great quantities. This is a man-made source, and has become a growing problem since 1952, when the total amount of radioactive materials released in the biosphere began to increase on a world-wide scale. X-ray and TV radiation are also man-made sources of radiation.

Natural or background radiation varies from place to place. It is greater at high altitudes than at sea level. It is found to occur less in limestone areas than in places where granite is common. Granite is more radioactive as a rock than is limestone. However, in nature, radiation is found in such small amounts that it has never posed a threat.

Atomic radiation, resulting from nuclear explosions, is found in the waste products. One type is Strontium 90, which chemically is similar to calcium. Strontium 90 has an affinity for calcium, and may accumulate in the bones. It may also lead to cataracts, leukemia, blood cancer, produce unfavorable genetic mutations, accelerate the aging process, and shorten the life span. Another type of atomic radiation is from Cesium 137, which may change the cells in the body and be transmitted to future generations. Still another type is Iodine 131, which can produce throat cancer. Although Strontium 90 seems to receive more notoriety, the other radiation wastes should also be noted.

There has been considerable debate among scientists in regard to present permissible concentrations as a valid guide to safety. Radiation limits have been reduced[29] by the Atomic Energy Commission for members of the public as well as for workers in atomic-industry plants.

The New York University Medical Center Institute of Industrial Medicine is using a chamber[30] called the Environmental Radiation Laboratory, where researchers are attempting to establish tolerance levels of "safe amounts" of exposures. Long-range studies of environmental radiation are under way in various sections of the country, under the auspices of the United States Department of Health, Education, and Welfare. These investigations are concerned with radiation findings in foodstuffs, air, water, soil, and life. Since Strontium 90 has the affinity to combine with calcium, this same agency has conducted analyses of bones. There have been similar collections elsewhere, and slowly information is being pieced together.

The bones of reindeer collected at Little Delta, Alaska, were found to be unusually high in Strontium 90. The discovery puzzled investigators at first because the area had a relatively light fallout. However, the moss held contaminated moisture from rain and snow on the surface. The reindeer ate the saturated moss, and so absorbed the poison.[31] Antlers collected in Scotland in 1957 showed eleven times the amount of Strontium 90 found in antlers in 1952.[32] In St. Louis, Missouri, when a child loses a tooth, his parents send the tooth to the Greater St. Louis Citizens' Committee for Nuclear Information, where it is examined for strontium content.[33]

There have been many conflicting statements issued regarding the rise or decline in fallout exposures, as well as contamination of foodstuffs. Commissioner George P. Larrick admitted:[34] "We do not have facilities to safeguard the food and drug supply adequately from contamination with radioactivity. We do not even have facilities to determine on a statistically sound basis whether the amounts of radioactivity now occurring in food constitute a near range or a long range threat to the public health." Public Health Service established a number of sampling stations throughout the country to measure radioactivity in milk. Consumers Union conducted a survey of radioactivity in milk in fifty different cities, because it felt that the government's efforts were totally insufficient. In a special report,[35] Consumers Union stated: ". . . The general pattern of radioactive products in food is almost completely unknown, so that there may conceivably be areas receiving much larger doses of which no one is aware. Fallout should, in short, be the focus of a penetrating, widespread, and objective national or international effort. As this is being written, the effort is not in sight. . . ." Iodine 131 was also found in milk.[36]

There have been equally confusing statements regarding radioactive contamination in other foodstuffs. "Whole-wheat bread contains roughly three to four times as much radioactive Strontium 90 as does white bread," according to tests made by scientists at the Atomic Energy Commission.

Yet in a statement issued by Secretary Flemming, on Strontium 90 in wheat,[37] it was recorded that "of the amount of strontium absorbed by the leaves of the plant (wheat) only very little is transported to other parts of the plant." A similar confusion exists for tea. In tests conducted by the Food and Drug Administration, it was reported,[38] "The highest increase in radioactivity since 1945 was found in dried tea leaves." But another report[39] mentioned that "tea can serve as an antidote to the effects of Strontium 90."

In general, governmental reports on radioactive contamination have tended to play down its dangers. In general, independent reports have tended to reveal hazards of varying degrees. These are a few which will be of interest: Between 1955 and 1957, the amount of Strontium 90 in the bones of American children doubled, according to a Lamont Geological Observatory group report.[40] Dr. Linus Pauling, world-renowned Nobel physicist, stated:[41] "The only safe amount of Strontium 90 in the bones of our children is zero."

Dr. E. Lapp, a physicist, gave the following assurances:[42]

1 Up to 20% of Strontium 90 is locked in the soil and not taken up by plants.
2 Plants with deep roots below the zone of contamination are safer.
3 Plant foliage is the most susceptible part of the plant to radiation.
4 Chemicals or dried organic matter can treat the soil successfully but expensively.
5 Radioactive contamination can be partly washed off some plant leaves and some fruit.
6 Radioactive contamination of foods seems to parallel the

"leak" from the atmosphere, instead of as a result of long accumulation in the soil. This is encouraging for everyday living, but not for the effects of a possible nuclear war.

WHAT CAN WE DO?

Calcium can help. It was reported[43] that subjects on a calcium deficient diet can retain up to five times as much Strontium 90 as those on a calcium-rich diet. The more calcium the body gets, the more Strontium 90 is expelled. Because of the affinity of the two elements, the more calcium is expelled, the more Strontium 90 is excreted with the calcium.

It has been suggested that cows be given a diet high in calcium to reduce Strontium 90 in milk. Dr. C. F. Bentley, Dean of Agriculture at the University of Alberta, warned[44] that "discontinuing or reducing milk consumption in the hope that intake of Strontium 90 will be reduced is a serious mistake. Milk contained considerably less strontium from fallout than the feed the cow had eaten, and the proportion of strontium to calcium was reduced considerably by the cow's digestive system. Consequently," Dr. Bentley went on, "the amount of strontium in the milk, compared with the calcium, is only about one-eighth as high as it was in the feed."

Consumer Reports noted:[45] "In order to reduce our Strontium 90 intake from other foods, it may be necessary to devise new diets to avoid Strontium 90 foods, which usually are our best source of calcium; we then would require uncontaminated calcium from mineral sources to make up the lack."

"The addition of calcium compounds to the diet can greatly reduce the amount of Strontium 90 deposited in the bones. Six tablets (half a gram) of dicalcium phosphate daily would cut the Strontium intake by fifty percent, according to Dr. Linus Pauling, director of Gates & Crellin Laboratories, California Institute of Technology . . . the tablets themselves must be strontium-free; that is, made from uncontaminated limestone." This is a report[46] from the *New Yorker.*

"By elevating the calcium and phosphorus content of the diet, it has been possible to decrease significantly the Strontium 90 retention. Other dietary alterations, such as adding chelating or complexing agents, have not proved to be of value. The use of ion exchange resins for removing Strontium 90 from milk may have merit if environmental levels increase considerably or in case of nuclear disaster. If fluid milk is passed through an ion-exchange resin, 70 to 90 percent of the Strontium 90 can be removed readily; by charging the resin with electrolytes in the same proportion as they exist in milk, there will not be any gross alteration in the composition of milk."[47]

Another method of utilizing calcium is to lime your garden. Plants take up Strontium 90, "thinking" it is calcium. If you add ground limestone to your garden soil, you will make it possible for the plants to absorb calcium, and not so much Strontium 90. General Electric scientists in Richland, Washington, learned that certain soil treatment may reduce Strontium 90. They experimented[48] with three types of soil: acid, alkaline, and calcium-rich. They learned that the Strontium 90 uptake in calcerous soil was one-half to one-third that from acid soil, due to available calcium in the soil. They also learned that it was possible to reduce the uptake of radioactive Strontium 90 by as much as 80 per cent simply by adding calcium-high lime or gypsum to acidic soils.

Certain foods are lower in Strontium 90 than others. Lettuce seems to have the ability to distinguish between Strontium 90 and calcium, and absorbs less of the poison. Fruits generally have a low radioactive level, attributed to their relatively smooth skins. Also, most fruits grow on stems, branches, or vines, and are removed from direct contact with contaminated soil. Dr. Edwin P. Lang, chief of the physiochemistry branch of the division of pharmacology of the Food and Drug Administration, suggested[49] methods of reducing fallout in foods already contaminated:

Shell peas
Peel potatoes and carrots
Remove outer leaves of vegetables
Wash thoroughly all fruits and vegetables.

Strontium 90 lodges especially in rough-skinned vegetables such as potatoes and carrots, and in the outer leaves of leafy vegetables. Just washing spinach thoroughly will reduce the Strontium 90 content up to 60 per cent.

Nutritional aids to help protect the body against radiation are:

Natural iodine, found in kelp, iodized salt, etc.
Pure water, free from artificial fluoridation. Bottled spring water is recommended.
Vitamin C and Bioflavonoids
Vitamin B-6
B Complex, found in Brewer's yeast and liver
Protein
Calcium
Pectin—a good source is hulled sunflower seeds[49a]

According to experimentation[50] with mice, cod-liver oil may be an effective protection against radiation. Dr. Gladys W. Royal, of North Carolina's Agricultural and Technical College, administered cod-liver oil to mice which had been exposed to a large dose of radiation which usually proves fatal within about five days. The mice lived from three to six days longer than mice which had not been given cod-liver oil.

Dr. James K. Ashikawa, at the Donner Laboratory of the University of California, administered vegetable-oil injections into mice which had been exposed to radiation. Dr. Ashikawa noted[51] that protection was offered if the oil was administered before radiation exposure. He also found that mice could survive lethal doses of X-rays through treatment with common edible vegetable oils, and suggested that victims of radiation sickness might be treated with olive and peanut oils. Brewer's yeast also protects rats and humans against radiation.[51a]

R. D. and J. F. Barnard, M.Ds. reported[52] that with two groups of rats exposed to radiation, the effects of radiation were counteracted by daily doses of lecithin.

The National Cancer Institute reported[53] that bone marrow offers some protection to animals from the harmful effects of radiation. This therapy has been applied to humans.[54] Bone meal, fortified with bone marrow, has now been made available commercially through health food stores. It contains two radiation-resisting elements.

Dr. Milton E. Parker, chairman of the Food Engineering Department of Illinois Institute of Technology, announced[55] that vermiculite or black mica, seemingly caused radioactive substances to be eliminated through the intestines rather than the urinary tract. This reduces the danger of absorption by body tissues. Animal experiments have indicated the possibility that this mineral may be of value as a human food supplement in battling radioactive contamination. Dr. Parker emphasized that the work is still in an experimental stage.

In leaving the subject of radioactive fallout, I should like to end with a thought expressed by J. Aldo Monteith, Federal Health Minister of Canada. He said:[56] "The facts [on fallout] do not warrant either panic or complacency."

TV RADIATION

One source of radiation comes from television sets. Dr. Carl B. Braestup, registered X-ray physicist, tested the amount of radiation from TV sets at the request of the Electronics Industries Associates. His report, which is technical, is included in the Appendix for those who are interested in the details.[57] The report discusses "permissible" doses of radiation. But many will agree with the findings of *Consumer Reports*,[58] that "the only *really* safe dose of radiation is none. . . . Experts are more reluctant than ever to set definite levels for the general population."

The practical recommendations growing out of this investigation are, that in order to avoid unnecessary exposure to radiation from your TV set, you should keep your children, as well as yourself, as far back from the set as possible without creating eyestrain.

Meanwhile, as a protection from radiation from all sources, it is well to remember the nutritional substances that have been found somewhat helpful in protection against radiation. Also, many physicians have advised exposure to X-ray machines only when absolutely essential. This, too, will help limit the accumulated exposures over a lifetime.

11. How Can You Eat Safely in a Poisoned World?

After repeated cases of mysterious food poisoning in my own family, this surprising explanation came to light:[1]

DINNERWARE CAN CAUSE POISONING

Berkeley (AP)—"The State Department of Public Health Friday warned that colored 'Cerama Stone' dinnerware, produced by a Stockton firm constitutes a health hazard.

"Dr. Malcolm H. Merrill, state health director, said eating acid food—tomatoes, vinegar, apple sauce or lemonade—from the dishware could lead to lead poisoning.

"He said laboratory tests showed all colors in the dinnerware except white give up lead to acid liquids in quantities which would cause such poisoning. . . .

"Two 'well authenticated' cases of lead intoxication due to routine use of this dinnerware were reported in a Cincinnati couple.

"Merrill said the manufacturer, Laurel Manufacturing Co., has stopped manufacturing this particular product and has asked all retail outlets to return the colored Stone ware.

"He said, however, not all outlets have halted the sale of such dishes, labeled on the bottom 'Cerama Stone by Laurel of California, USA' . . ."

I returned my set of poisonous dishes when I learned of the danger, but many uninformed people all over the U.S. are still using theirs. The company has long since closed its doors!

We are surrounded by so many poisons, that the situation seems hopeless. If you are about to throw up your hands, shrug your shoulders, and say, "What is the use?" stop right there. Although we cannot eliminate all the dangers, we can control many of them if we attack the problem intelligently. Here are some guides to safer eating:

EATING AT HOME

If you are fortunate enough to own any land, you can raise some of your own vegetables and fruits, and raise them poison-free. It is surprising to many persons how much can be grown on a small plot in the suburbs. If you are actually out in the country, you might wish to consider livestock as well. However, if you live in a city apartment, or even in a furnished room, you are not excused from growing at least one of your fresh vegetables, and growing it poison-free! I speak, of course, of sprouts. Here is indeed a fresh vegetable without any of the chemical additives. If you are unfamiliar with sprouts, good descriptions of methods of preparing them are found in cookbooks.[1a]

If you do grow some of your own food, you probably have space for trees and bushes. Instead of growing merely ornamental ones, consider planting berry bushes, dwarf fruit trees and nut trees. You will have aesthetic pleasure and useful yields as well.

Seek out neighbors who are also interested in growing natural food poison-free. It is surprising how many people have become interested in doing so. You will find many mutual interests, sharing of ideas, and crops. You may be able to arrange a barter which will save you work. You plan to grow twice the number of tomatoes you will need, to supply your neighbor as well. Your neighbor, in exchange, will grow twice the number of cabbages he needs, in order to share them with you. Not only will you save labor, but you will enjoy a community spirit. If you find a number of neighbors with mutual interests, so much the better.

The old refrigerator which was replaced by a newer, larger model may serve you well in holding freshly ground whole grains, a temporary surplus from the fall harvest, and some nutritional supplements which require refrigeration. A freezer, whenever possible, also permits you to store large quantities of good food when opportunities are available. A cool pantry, dry and well ventilated, allows you to store properly unsprayed apples, oranges, etc. A dry, cool cellar will hold the root vegetables as in Grandmother's day. If your home allows space, and your budget permits, a stone grinder for grain will prove a worth-while investment.

Remember, it will be the day-by-day careful meal preparations that count. On those special occasions of birthdays and holidays, use your ingenuity in making the meals gala, but nutritious too. When you entertain guests, practice what you preach. Serve nutritious foods, and serve them with pride. Make them tempting and attractive.

SHOPPING

When you shop in local food stores, you will have to be an intelligent shopper. Learn to read the labels. Dr. Clive M. McCay said:[2] "Industries constantly fight labels telling us what is in the products we buy on the grounds that the consumer is too ignorant or too lazy to read them. I am convinced that labels are more important every day. They should tell what spray residues are contained in a product, and not merely what chemicals have been incorporated in the wrapping materials. They should tell what chemicals and dyes have been added to every food. Finally they should tell the composition, so that the consumer knows how much milk, eggs, sugar, hydrogenated fat and other products are contained in products such as candies, soft drinks, doughnuts, cake mixes and bread.

"Wouldn't it be better to be able to enjoy chicken liver without wondering if one is eating too much arsenic or to enjoy a beefsteak without wondering if the producer stopped feeding stilbestrol long enough to clear the tissues before the steer went to market?

"It would seem obvious that in a nation that produces too much food we would be better off if we turned our attention toward less quantity and more wholesomeness."

After reading labels carefully, if you are not certain about some of the ingredients, write to the manufacturer, and request information. If you fail to receive an answer which satisfies you, do not buy the product. Be careful of the "weasel" words which are permitted on labels. For example, "hardened" is another word for "hydrogenated"; "sun-dried" fruit does not necessarily imply that the fruit has not been prepared with sulphur dioxide. Producers of integrity will print on the label: *Not prepared with sulphur dioxide.*

Talk to the storekeepers. Tell the butcher about stilbestrol. Butchers are generally good meat eaters themselves. They will be interested in what you have to say. Tell the fish merchant about the antibiotic baths. Tell the vegetable man about the sprays. Sometimes shopkeepers are interested to learn about sources of poison-free foods, because consumers other than yourself have requested them. You may be able to arrange with your shopkeeper to order a bushel of sweet potatoes without dye, if he'll try to sell half of the bushel to other customers. Urge him to label the sweet potatoes "not artificially dyed," and see what consumer interest it arouses.

HEALTH FOOD STORES

There will be some items which your storekeepers do not stock. You will probably have to seek out special sources in your vicinity, such as special sections of supermarkets, department stores, or health food stores. It is not possible to generalize about these special sources. Frankly, I have some mixed feelings, a large amount of which is sympathy. These channels attempt to carry special foods, including those for allergy sufferers, those on salt-free or sugar-free diets, or vegetarians. They stock many items not available in other stores. It is hard going. Because of limited demand, the foods are often more expensive. In order to keep the business going, some owners are forced to carry other items which, though not harmful, are not necessarily helpful. You will have to be just as discriminating a shopper in these places as you would in other places. In time, as more and more people demand nutritious items, there will be more widespread distribution and lower costs. Meanwhile, these special channels deserve our understanding and our patronage. If the store is small and not ornamented with attractive displays, remember that it is not sponsored by any huge chain financed by the profits on "empty," worthless foods. In areas where there are large numbers of persons in a community who patronize health food centers, I have witnessed most attractive and educational displays.

Dr. McCay remarked, "I believe the health food stores need a central agency of genuine experts to help them." This help seems to be forthcoming. An organization[3] has voluntarily organized to help raise the standards of health food stores. Members of this group have pledged that they will neither try to diagnose nor to prescribe for ailments. A seal authorized by the Association is displayed in the window of the store, which announces that the store is a Certified Diet Foods Store. If you wish help in locating the nearest one in your vicinity, the Association will assist you.

For persons who live in outlying communities and do not have easy access to special sources, reputable mail-order houses are a great boon. Here, too, you will have to be just as discriminating a shopper as you would in other situations. (For suggestions, see Appendix Chapter 8, #15) If you can organize group orders for your neighbors as well as yourself, you will find a substantial saving by ordering large amounts. Postage or express charges are lower as well.

EATING AWAY FROM HOME

Are you afraid of insulting your friends by refusing to eat their food? There are many devices which different people have learned to use, which are tactful, and at the same time, effective. You can accept invitations for evenings, *after* meals. If you must attend a meal, choose the lesser of the evils on the menu, and leave the rest. You can invent a number of polite excuses, which will not be offensive. You have a small appetite. You had a late lunch. You just arrived from a late tea with a dear old friend. You've given up desserts. You can't drink coffee that late in the evening.

At the cocktail party, you can hold the glass. As the time goes on, no one will notice whether or not the contents of your glass diminishes. You can always pour the contents into the flowerpot holding the potted palm. Or, you can cavort about, sipping from a glass of water which looks strikingly like vodka. You might eat the cheese wedge, but leave the cracker. You might eat the fruit cup, but leave the syrup and maraschino cherry. In other words, do the best you can under the circumstances.

Eating in restaurants requires some thought. Once I traveled to a convention with a group of people. We stopped our car at the last possible restaurant in a small town adjacent to the large city which was our destination. The restaurant was not elaborate but it looked clean. We were too hungry and tired to be very fussy.

We ordered plate lunches. When my plate was brought to the table, I could scarcely look at it, let alone eat it. The lamb chop was swimming in grease, the vegetables were gray instead of green, and the mashed potatoes looked soggy. Usually, I am reasonably tolerant, but this was too much. I sent it back politely but firmly, and ordered a sandwich.

The people with me seemed strangely embarrassed. They looked around furtively, to see if anyone else in the restaurant had noticed that I had dared to return a dish to the kitchen because it was unsatisfactory.

"Look," I said, "don't let this bother you. I probably should have ordered a sandwich in the first place, because we had no way of knowing what kind of cooking to expect. But I still have the advice of a college professor ringing in my ears. He said, 'The public will always receive what it demands, and no more. The only way to raise standards is for at least a few people to stick by their guns and refuse to accept what is substandard. When you pay for something, you should get your money's worth. You need not be unpleasant. You need only to be firm. In this way you become an intelligent consumer. You not only help yourself, but you help others as well.' "

My companions stared at me thoughtfully, and then they began to look interested.

One of them said, "I've always been afraid to refuse restaurant food, good or bad. I worry for fear it will make the chef mad or be inconvenient for somebody."

"But," I countered, "you would return a pair of shoes which were too small, or a toaster which didn't toast properly, wouldn't you?"

"Of course," they all agreed, "but we never thought of food in that way."

"Food is even more important," I said. "It is the fuel which keeps your bodies in working order. It ought to be of the highest possible quality. You don't put inferior oil or gasoline in your car. Why should you do it in your own body?"

In large cities, you can sometimes find "juice bars" which you can patronize. They frequently serve crisp salads, yogurt, etc.; but even in the average restaurant, there is enough variety on the menu so that you may generally obtain broiled fish, broiled meat, salads, etc. Sometimes fresh fruit cup or cheese is included under desserts. Although these foods may not be "naturally" grown, they still offer you better possibilities, nutritionally, than my lamb chop swimming in grease.

At least one restaurant has been opened that attempts to serve natural foods. Jim Baker started The Aware Inn, in Hollywood, California. The place is crowded nightly, which is a glowing tribute to the food. The Aware Inn serves meat and poultry which is untreated with hormones, and vegetables and fruits which are raised poison-free, and not treated with additives. Mr. Baker buys most of his food from special sources. After reading the menu, I wished I lived close enough to enjoy its gourmet-healthful foods. More restaurants of this sort will probably develop, as a demand develops for them. Mr. Baker is encouraging the development through a franchise system.

If none of these possibilities are present in situations of eating while away from home, provide yourself with a picnic meal. Enjoy it in the knowledge that it is far superior to anything obtainable. If you are away on extended trips, you can still manage remarkably well, if you plan and organize your food carefully. Thermos bottle, portable refrigerator, a plug-in electric percolator (without the inner gear), are very useful. Plan to use the more perishable foods first, and the longer-lasting ones later. If your bread supply runs out, be prepared with home-made whole-grain hardtack. Oranges, apples, dried fruits, nuts, hard-cooked eggs, natural cheeses, home-canned fruit juices, etc., are items that travel well. You can sprout grains en route, without effort. Remember how the Indians traveled with their pemmican, consisting of dried fruits and jerked venison? A modern-version pemmican of dried fruit and nuts mixed together provides a satisfying snack or meal.

For your children away from home, investigate schools and camps which stress nutritious food as well as academic offerings. This is still another area where we must make ourselves heard. As more of us demand good foods at schools and at camps, these institutions will become more aware of the problem. You will be doing a fine service not only to your own children, but to many others as well.

At present, the North Country School at Lake Placid,[4] New York, serves insecticide-free food. Much of the food is raised organically on the premises. The children participate in this project. Wheat is freshly ground there for bread and cereal. Additional food is bought from reputable sources. Only natural sweeteners such as honey and maple syrup are allowed. Cola drinks are not used.

For older students, Fairleigh Dickinson University in Rutherford,[5] New Jersey, offers a program geared to good nutritional education and practices. Every freshman is required to take a course in nutrition. Candy and carbonated beverages are barred from sale. A breakfast "cocktail" of orange juice and brewer's yeast is served, in addition to whole-grain cereals. Fruits and vegetables which are served are raised poison-free. One of the faculty members, Professor F. J. Morrow, a research chemist, has done studies on the cumulative effects of insecticides on people.

The experience of the North Country School, as well as at Fairleigh Dickinson University, are similar to those elsewhere, where such nutritional measures have been instituted. Absences due to colds and minor ailments have been cut down. Even though numerous children have had past histories of asthma, hay fever, sinus, allergies, frequent colds, and related conditions, they have enjoyed good health at these schools.

EDUCATING YOURSELF FURTHER

Dr. McCay advised us to educate ourselves: "We must be more and more informed not only about foods but about the activities of the psychologists who force us to buy given products or accept certain philosophies. In the next place we can refuse to look at television and much of the current advertising. I know not how to avoid billboards, but if it is possible I believe we should devote our time to looking at birds, trees, flowers and gardens.

"Many have read *The Hidden Persuaders*. Others are aware of the use of slight flashes upon television that last but a fiftieth of a second but send us off to buy more popcorn or soft drinks or alcoholic beverages.

"How can we know what is happening to our food, air and water? And what can we do about it? Fortunately we can still read."

Fortunately we have a number of books, pamphlets, and articles available on the subject of nutrition and allied subjects of health. Some are available through your booksellers, libraries, or special reference libraries. However, you may be confused by the welter of materials, of various qualities, which are available. If you are in doubt as to where to find trustworthy information, as well as to decide which books are worth while to read or to purchase, there is a unique service available to you, regardless of where you live. This service offers you a priceless key to open the door to further self-education.

Mrs. Mildred S. Hatch of St. Johnsbury, Vermont,[6] maintains a *Free Loan Library* of books on health and nutrition, and related subjects. Just how this unique lending library was developed is best told in her own words, printed in *Child-Family Digest*, November-December, 1958:

> "Possibly you will be interested in the way I started my library. About seven years ago I was attending a meeting of a woman's club. The subject of nutrition was being discussed. An especially alert member asked how one could learn more about nutrition. She mentioned that she was thoroughly confused by the conflicting statements in the newspaper and magazines and over the radio and TV. She had found no help at the local library. That evening I came home and announced to Mr. Hatch, 'I am going to start a loan library on nutrition.'
>
> "Since he had been for many years an agricultural missionary, he was enthusiastic. I began almost immediately by lending books to the woman who had given me the idea and to a few others. In fact I knew so few people who would consider reading a book on the subject that there was no risk

in offering to lend anyone a book without charge except for the repayment of the outgoing postage. The borrower could always buy the book, but I have always made it clear that there is no obligation to do so.

"The plan appeals to a surprising number of people; and one tells another about this novel lending service. Many times the would-be borrower doesn't know the title of the book he wishes. . . . We send thousands in a year. We don't lose books, but they are out of circulation for many weeks when they go to India or to some country in South America. A reader in Idaho wrote that her nearest library was 40 miles away and that it had no recent books on nutrition. . . . The appreciation of borrowers is frequently expressed by telling of the improved health of different members of the family. Hardly a day goes by without one or more heart-warming letters."

Many of the books listed in the Appendix of this book may be borrowed from Mrs. Hatch. She has additional books. She also lends technical books on nutrition to professional doctors, dentists, and nutritionists.

In addition to educating yourself through reading, you may also wish to subscribe to one or more of the publications and/or become a member of one or more of the organizations[7] interested in the problems of health and nutrition. Although their general purposes and goals are similar, each stresses a different aspect of the problem. As more and more people become active in this movement, the realization comes closer of changing our environment so that foods can be grown wholesomely, and so that nutrition can help us stay young longer.

12. What About Vitamins?

Dr. Roger J. Williams, who discovered one of the B vitamins (Pantothenic acid) wrote:[1] "Some poorly informed people may think of vitamins as a recent fad. It is true that we have known about them for only a few decades but there is abundant evidence that they may have been part of nature's equipment since long before man appeared on earth."

According to Dr. Williams, we all need the essentials of fuel, minerals, amino acids derived from protein, and vitamins. He reported: "All needs are absolute . . . no human being has ever developed, nor can maintain life, unless each of these foods is furnished in sufficient amounts."

"The editorial policy of the leading medical journals has been to play down everything connected with vitamin deficiencies for fear that vitamins will get too much in the hands of the laity," charged[2] D. T. Quigley, M.D. "In spite of their attitude, this has occurred. The layman has recognized that there is something valuable to be had along this line, and in a dumb, muddling way he has reached for it. Around half a billion dollars is spent in the United States each year for vitamin preparations. This is mostly on a nonintelligent basis. But these remedies have undoubtedly helped in some small way, but not in a way that could be achieved if the remedies were intelligently used.

"This applies to vitamins bought over the counter, and also to vitamins prescribed by physicians."

WHY YOU MAY NEED VITAMIN SUPPLEMENTATION[3]

1 The following disorders are listed as those which may interfere with your body's ability to utilize good food:
    - Migraine headaches (a stress)
    - Gall bladder
    - Ulcers
    - Colitis
    - Hyperthyroidism
    - Surgical stress
    - Loss of teeth
    - Heart disturbance causing nausea and vomitting
    - Pregnancy
    - Overactive thyroid (burns up food too fast)
    - Diarrhea (rushes food out of the body before it can be used)
    - Lack of hydrochloric acid or bile (insufficient breakdown of food)
    - Excessive sweating (causes loss of B vitamins)

Hemorrhages
Burns
Severe colds
Intestinal parasites (They exist in 94 out of 200 people studied. These are picked up on doorknobs, money, etc.; Signs of vitamin deficiencies in people harboring parasites disappeared when parasites were medicinally killed.)
Dieting
Overactive kidneys
Aging (causes poorer assimilation)
Liver disease
Chronic alcoholism
Allergies (food)
Excessive physical activity
Infections

2 Smoking destroys vitamin C.
3 Aspirin destroys vitamin C.
4 Alcohol destroys one of the B vitamins (thiamin).
5 Sugar destroys one of the B vitamins (thiamin).
6 Light destroys vitamins. (A milk bottle, left on a doorstep in bright sunlight, loses 50 per cent of the B vitamin, riboflavin, in a few hours.)
7 Excessive intake of fluids washes vitamins out of the body.
8 Antibiotics destroy vitamins.
9 Antacids destroy B vitamins. (These are widely advertised for indigestion.)
10 Stress (It can destroy the vitamin C stored in th adrenal glands within seconds. Stress can be caused by shock, fright, worry, inability to pay bills, a mortgage coming due, grief, or a quarrel, etc.;)
11 Laxatives. (Mineral oil removes fat-soluble vitamns A, D, E, and K. Other laxatives rush vitamins out of the body before they can be used.)
12 Certain practices destroy vitamins:
  Contact with lead used in paint or in fumes from cleaning fluids
  Breathing polluted air
  Drinking chlorinated water
  Taking sleeping pills (barbiturates)
  Oxidizing of food (This destroys vitamins. Example. a cut apple turns brown.)
  Exposing fresh foods or vitamin supplements to bright light.
  Exposing fresh foods to air or long storage
  Soaking of vegetables

Cooking food improperly (too slow, too long, or too high heat)
Discarding of cooking water (as high as 80 per cent loss of nutrients may result)
Adding soda to green vegetables (destroys vitamins B and C)
Removing vitamins and minerals from foods by processing, refining, or bleaching
Growing food on impoverished soil

It is obvious from the above listing, that we suffer vitamin losses in many ways. Can health be regained without the use of vitamin supplements? Some people have regained health through diet alone, but many experts believe that it takes longer without the help of supplementation. Vitamins, in natural forms, are concentrations from foods, and take the place of many, many pounds of food.

CAN VITAMIN SUPPLEMENTATION BE DANGEROUS?

In the late 1940's, a doctor was quoted by the press as saying, "Vitamins are toxic. By all means avoid them." Later, when he was queried, he said, "Oh, I was talking about vitamin D. Everyone knows that vitamin D is toxic in high dosages."

It is true that vitamin D *is* toxic in high doses. But it is also true that high dosages are available by prescription only.

Vitamin D is cumulative. The accumulation in the body may become too great if a fish-liver oil concentrate is used. Some researchers[4] feel that any amount over 400 international units cannot be justified.

Dr. Roger J. Williams stated:[5] "If we have reasonable access to sunlight or other sources of ultraviolet light, our body's vitamin D is adequately filled. If not, vitamin D, or the 'sunshine vitamin,' must be watched." Dr. Williams added,[1] "Serious attempts to study the differences in the nutritional needs of individual people have, in general, never been made. . . . The minimum of vitamin D needed by any normal human being is not known, but the maximum is certainly twenty times what is considered average."

The most practical solution, suggested by many physicians, for a safe supply of vitamin D is to get a normal amount of sun in summer. This can be supplemented with cod-liver oil in winter.

Again, another vitamin made headlines with a half-truth. Bold print proclaimed, "Vitamin A is toxic." When the whole story came out, it seems that some mothers, instructed to give their babies concentrated vitamin A in *drops,* decided instead to give it by the *spoonful.* The mothers reasoned, unwisely, that if a little were good, a lot would be better.

How much vitamin A is too much? Eskimos take approximately 100,000 units daily in the form of seal oil. A nutritionist[6] takes 25,000 units daily in supplement form on the occasions when she expects to use her eyes unduly. A study[7] was made of eighteen patients given 100,000 units of vitamin A weekly by injection to clear up rhinitis (stuffy, runny nose). They showed no ill effects from the massive doses. Seventeen of the eighteen improved. Three regained their sense of smell which had not been functioning properly for from eight to twenty years. However, all patients were then reduced to a small daily maintenance dose.

Two studies, from Ohio and California,[8] reported difficulties from high doses of vitamin A which were self-administered. Dosages ranged from 150,000 to 200,000 units daily, taken over a prolonged period of time. In one case the dosage was taken for as long as ten months. Loss of hair, bleeding, and illness resulted in these cases, but symptoms ceased with the cessation of the high dosages.

Except for vitamins A and D, is there any danger in taking too much of vitamins? Dr. Agnes Fay Morgan found[9] unfavorable results in dog experiments when certain B vitamins were given alone. At that time it was not known that niacin may be supplied by synthesis from tryptophane, one of the amino acids. Her dogs received a protein-rich diet and therefore plenty of tryptophane with resulting inadequate supplies of niacin, one of the B vitamins she thought the diet did not supply. The whole experiment may now be interpreted quite differently from the way it was in 1941. The deficiency was largely single in character, from pantothenic-acid lack only, with possibly some complications from lack of enough folic acid and biotin (both B vitamins) or vitamin E.

Numerous illustrations of the effect of imbalance caused by administering single B vitamins alone appear in medical literature.[10] Vitamin experts feel that corresponding doses of the rest of the B complex must accompany large doses of any single B vitamin.

Adelle Davis cited[6] an example of a thirty-eight-year-old seamstress who looked fifty-five or sixty. "Her eyes were bloodshot; she believed they were strained by her work. Her upper lip had completely disappeared; small cracks cut downward from the corners of her mouth . . . fatigue showed in every line of her face. . . . Most of her hair had fallen out during the past year . . . the thin, scraggly remainder was white. She had other abnormalities; her nerves were taut and jumpy; she suffered from insomnia; she worried excessively and felt depressed; the back of her lap was so covered with eczema that she could scarcely sit down; yet she was too exhaused to stand up.

"It was only after much questioning that I found the cause of her trouble. She used to be so tired, she said. She had heard that Vitamin B1 prevented fatigue and had found on taking it that at first she did feel better. When the effect 'wore off,' she asked the druggist for the highest potency B1 tablet he had and when this tablet had not helped she gradually increased the amount to four tablets daily. I had difficulty in convincing her that vitamin B1 was at fault. She was afraid to give it up. I have seen dozens of cases in which the multiple deficiencies of other B vitamins had been caused by taking vitamin B1 (alone)."

Arthur U. Rivin, M.D. found that three to six grams of synthetic niacin (another B vitamin), administered to a twenty-three-year-old man to reduce his cholesterol, resulted in jaundice.[10] I personally know two people who took large doses of niacin for prolonged periods, without the accompaniment of the other B vitamins (which they could have obtained easily in liver or brewer's yeast). Both persons developed disturbing symptoms, apparently caused by the vitamin B imbalance. The symptoms ceased when the niacin was discontinued.

Dr. Raymond Bernard explained:[11] ". . . it is much better to use the entire vitamin B complex, as provided by natural organic sources of this vitamin, such as brewer's yeast, than to use isolated factors. Just as no chemist can synthetically create the vitamin B complex of brewer's yeast, because it contains both known and unknown vitamin B and other associated factors on which its proper action depends, so it is impossible for any physician to specify the exact tolerance of any individual to special isolated vitamins and to differentiate between the quantity that constitutes a harmful excess and what does not. Hence the failure of isolated vitamin therapy, especially when highly purified, chemically produced synthetic products are used."

From the reports and statements cited above, it will be seen that self-treatment with large doses of separate vitamins is unwise. A physician experienced in vitamin therapy, keeps a watchful eye on the needs of the individual person.

DO YOU NEED VITAMINS?

Can health be regained without the use of vitamin supplementation? Some people have achieved it through diet alone. Some may have greater recuperative powers. Others, though rare, may have inherited excellent glands and can apparently eat anything and thrive. But, according to Dr. Roger J. Williams, "hollow" food will sooner or later bring its day of reckoning.

Even when vitamin content in food is good, it is no assurance that we utilize it. Dr. Michael Rabben stated:[12] "An adequate intake does not assure assimilation unless the apparatus of assimilation is functioning normally. It is a mistake to assume that food taken into the body automatically arrives at each and every cell at the right time in proper form and quantity, ready for use, and that it is immediately utilized."

For example, Vitamin A, in the form of carotene, was given to rats. Tests[13] revealed that the rats absorbed only 51.5 per cent of the dose, and the height of absorption was not reached until seven hours after ingestion.

There are many groups of people whose needs for vitamins are especially great. These include babies, teenagers, mothers-to-be, nursing mothers, and senior citizens. Unwise dieters who rob their bodies of vitamins and minerals by cutting down on essential foods, may need supplementation. Smokers, who also rob their bodies of vitamins, would benefit from supplementation. This lists only some special needs. Everyone's optimal intake or utilization of vitamins is lowered in many ways.

The average man whom you consider "well-fed" may be vitamin-deficient, according to a study[14] of 600 industrial workers. At least one out of every four in this group was found to be nutritionally deficient in spite of being of normal weight or over. "The men skimped breakfast and then tried to make up for it by a midmorning coffee break containing plenty of sugar but no vitamins. Hungry by lunch time, they again picked high-energy low-vitamin foods at the plant cafeteria. The suppers their wives put before them may have been nutritionally perfect. But they were often too tired to eat properly. And when they raided the refrigerator for a late evening snack, they again usually chose high calorie tidbits that added little to their vitamin intake. Thus while they strained their hearts with the burden of their excess weight, their bodies were often depleted of vital nutrients." (Many other reports of vitamin deficiencies are given in Chapter 18.)

SHOULD YOU TAKE VITAMINS ONLY ON A DOCTOR'S PRESCRIPTION?

If you are ill and need massive doses for therapy, it is wise to seek help from professional sources. However, if you are in average health, this is the advice offered by Dr. Norman Jolliffe, Chief of the Nutrition Division of the New York City Department of Health:

"Any person who cannot—or will not—take an adequate balanced diet giving him the full daily allowances recommended by the National Research Council's Food and Nutrition Board should take supplementary vitamins. You don't have to ask your doctor's permission to drink orange juice or to eat vitamin fortified bread, milk or cereals. By the same token you don't have to go to your doctor to ask, 'May I improve my diet with vitamin capsules?' Anyone who is not sure of his diet's adequacy is perfectly justified in supplementing it with multiple vitamins. And with vitamin insurance—and with any other insurance—the time to take out your policy is before you get sick."

WHICH VITAMINS SHOULD YOU TAKE?

Nutritional needs vary with the individual, according to Dr. Roger J. Williams. There is no rule of thumb for all. In deciding what your needs are, you will have to ask yourself the following questions:

1. What food do I eat?
2. How much?
3. How well do I chew it?
4. How was it cooked?
5. How fresh was it?
6. Where was it grown?
7. In what season of the year was it grown?
8. How many of the food's vitamins and minerals are easily utilized?
9. How old am I? How tall? How much do I weigh?
10. What kind of work do I do?
11. Am I lethargic, high-strung, or nervous?
12. How much stress do I have?
13. How is my present health?

According to Dr. Williams, some people require as much as ten times more vitamin A than others. Some people need twenty times more vitamin D than others. Some individuals require four times more vitamin B1, and their needs for the other remaining B vitamins also vary. This demonstrates how individual needs must be met.

Dr. Morton S. Biskind states that a physician would not think of giving the same amount of insulin to every diabetic, yet some think nothing of giving patients the "standard" vitamin regime. Vitamins, Dr. Biskind warns, also need the presence of trace elements and protein for their normal functioning. He stated: "Complete therapy therefore implies simultaneous availability of *all* essentials."[15]

Dr. Biskind continued: "One common misconception is that all the important nutritional elements have already been isolated, and indeed, that a number of those currently available are not significant in human nutrition."

"Another misconception is that deficiencies of single factors occur in human beings . . . 'Thiamin deficiency,' 'Niacin deficiency,' 'Riboflavin deficiency,' and the like are used in publications under the assumption that they refer to pure uncomplicated deficiencies of single factors . . . Administration of therapeutic doses of single substances (or even incomplete groups of them) is either partially effective, or even altogether ineffective. At the most it may actually be harmful." " . . . it is not possible to omit just one element without complicating the deficiency by the lack of all the essential elements yet unknown or unavailable. . . . Factors which lead to the loss of thiamine, for instance, inevitably lead to the loss of other substances that occur with it. . . . For many years, investigators with experience in nutritional disorders have stressed the need for complete therapy."

Dr. Biskind feels that even the combination of vitamins usually known as "therapeutic preparations" are amazingly incomplete. This explains why there are so many failures in nutritional treatment which would have been successful had the therapy been complete.

According to Dr. Biskind, "therapy should be *complete, intensive* and *persistent*. Neglect of any of these three principles leads to ultimate failure, and may even cause deterioration in the nutritional status of the patient . . . there is little advantage in strengthening a dozen links in this chain, or even all of them but one, if that one link is weak or broken. Yet current practices in nutritional therapy reveal how poorly understood is this simple fact."

Dr.Biskind believes that it is unwise to combine massive doses of some vitamins with small doses of others. For example, he points out that larger doses of vitamin A may cause a deficiency of the B vitamins.

Dr. Roger J. Williams agrees. "It needs to be emphasized at this point that our bodies need, not single food elements by themselves, but a suitable assortment of all. When we say *all,* we mean *all.* If one single food element is missing from our diet, our bodies fail to get what they need. They suffer from malnutrition just as truly as if many items were missing.

"It is sometimes not appreciated that every cell and tissue of the body (there are billions of cells and hundreds of different kinds of cells) require constant nutrition. . . . The mills of the gods grind slowly but grind exceedingly fine, and it is possible that in this modern day more ills are caused by mild or cellular malnutrition than any other cause. One can appear perfectly normal in looks and behavior and yet be the victim of mild cellular malnutrition, which may impair the activity of important functioning tissues and decrease one's bodily efficiency materially." '

This is an illustration. A study[16] with chickens revealed the effect of imbalance. The chickens were given a diet which was considered adequate. It consisted of whole meal, oat flakes, barley meal, meat-and-bone meal, wheat bran, mineral mixture, cod-liver oil, and raw carrot and cabbage. This diet produced a gradual paralysis and anemia. When vitamins B1, B2, B6, pantothenic acid, and folic acid (all B vitamins) were added, as well as vitamin C, the chickens recovered from their paralysis. Their difficulty was traced to incomplete or inbalancing of vitamins.

H. Curtis Wood, Jr., M.D. in his book *Overfed But Undernourished* pointed out[17] that serious conditions, and even death, can result from complete lack of just one vitamin. Dr. Wood cited the absence of vitamin C as an example.

H. M. Sinclair, M.D. called attention[17a] to the fact that food elements work together for health. Vitamin B6 (pyridoxine) is necessary, he reported, to help the body assimilate essential fats. Vitamin E is necessary to hinder destruction of these unsaturated fats in food as well as in the body.

Man is inclined to discover a single new vitamin and exclaim, "This is the most important one yet!" But nature is wiser. Nature grows the vitamins, minerals, and food elements together, and expects us to eat them together.

Thus, those who specialize in vitamin therapy, advise that *all* vitamins known to date, as well as those which are not yet identified, are necessary in the diet. In addition, minerals, proteins, and special vitamin-and-mineral-rich foods are recommended.

HOW MUCH OF EACH VITAMIN SHOULD YOU TAKE?

D. T. Quigley, M.D. said:[18] "On account of the fact that the average person has been living for many years on mineral and diet deficiencies and on account of the fact that those whose diet deficiencies strike the gastrointestinal tract and render absorption less active, the remedial agents to combat infections must be given in at least twice the quantities that would be required for maintenance had the person never been on a deficient diet. . . . As the best possible food in the best quantities cannot make up for the years the patient has been starved for vitamins and minerals, it is only by supplying concentrates that the optimum can be regained. All food deficiencies are multiple deficiencies, so multiple concentrates are used."

Dr. Biskind agrees.[5] "Tissues once depleted require much more of the essential factors than it is possible to obtain in an optimal diet. It is nevertheless important that the diet be as rich in protein and vitamins as feasible. But the vitamin content of the diet may not be depended on to yield quantities sufficient to heal nutritional lesions. Experience indicates that at least ten, twenty, even fifty times the maintenance amounts for persons who have never been deficient, are often necessary for therapy. And after the lesions have healed, the maintenance dosage remains at least five to ten times the normal intake indefinitely. . . . *Apparently a qualitative change takes place in depleted tissues which no longer permits them to utilize the normal amounts.*"

Physicians who specialize in the field of vitamin therapy find that when therapeutic or remedial help is necessary, the principle of mass action of vitamins is the most effective way to penetrate the blood stream and tissues in order to remedy serious deficiencies. Dr. Tom Spies, for example, in his rehabilitation treatment, administered[19] to his patients not one but *all* of the following foods and supplements until health returned:

1. A 4000-calorie diet
2. 2 to 4 ounces of brewer's yeast daily, plus liver or liver powder in large amounts
3. Massive doses of vitamins orally
4. Vitamins by injection

Today, we know that liver is a storage depot for vitamins, minerals, and proteins; that it is the most nutritious meat you can buy. Dr. Biskind considers liver, in addition to vitamins A, B Complex, C, D, and E, a necessity for regaining health. But liver should be in its natural state, Dr. Biskind advises, since many nutrients are lost if it is processed. Desiccated liver, dried at low temperature, runs a close second to fresh liver. Dr. Biskind noted:[15] "Simply adding desiccated liver or suitable liver fractions to the regime invariably has resulted in a dramatic and lasting improvement, often evident within a few days." This is because yeast alone is an inadequate source of several of the B vitamins. For example, it does not provide B12 at all. But liver and yeast interlocked into the diet can produce excellent results.

For people with impaired absorption, Dr. Biskind suggested[15] to physicians the exact vitamin dosage required for therapy. He continued: "It has been pointed out that nutritional deficiency can be produced by a variety of factors other than dietary depletion. . . . A person continually exposed to . . . insecticides, can expect only partial relief so long as the inciting agent continues to act. A patient who persists in consuming vast quantities of sugar and other refined carbohydrates, to the detriment of the protein intake, can similarly expect little benefit from nutritional therapy. Likewise an individual under stress of acute anxiety, which impairs absorption and utilization and increases destruction and excretion of the essential nutrients, will not respond even to massive doses of these substances."

The effects of stress on nutrition should be acknowledged. Dr. Biskind accompanied his article[15] with a photograph of a case of glossitis (a disturbance of the tongue). It did not heal, in spite of intensive vitamin therapy, until the patient was relieved of acute anxiety.

SHOULD HIGH VITAMIN DOSAGE BE CONTINUED INDEFINITELY?

Assuming you have undergone high vitamin dosage therapy, and your health has been restored to "normal" or near-normal, should high dosages be continued for added insurance? Following the injection and/or large doses of vitamins, once you are up to par, a more rational dose may be sufficient. Remember, however, that tissues suffering from prolonged depletion may require a higher-than-average maintenance dosage. When this is not understood, people sometimes drop their vitamin therapy because they believe that they have been "cured." In these cases, ill health may return.

Vitamin needs for "average" people have been established by the Foods and Nutrition Council. Our nutritional knowledge is changing rapidly. The Board itself has already raised its allowances from an MDR (mimimum daily requirement) to a more generous allowance, RDA (recommended daily requirement). Physicians are giving higher vitamin dosages today than they did ten years ago. Vitamin B12 is an example.

Here are some of Dr. Michael J. Walsh's suggestions for minimum daily intake. Dr. Walsh is Consulting Nutritionist and Instructor in Clinical Nutrition at the University of California.[15a]

At least 140 grams of animal protein
1,000 milligrams of calcium
500 milligrams of phosphorus
18 milligrams of iron
150 micrograms of iodine
fractions of milligrams of the trace minerals
10,000 International Units of Vitamin A
2 milligrams of B-1
3 milligrams of B-2
24 milligrams of niacin
150 milligrams of C
400 International Units of D
together with whatever unknowns may be needed, but of which we do not yet know the significance

The study of nutrition is still in its infancy. All vitamins and their accompanying unknown factors are not yet fully understood. Nature, not man or laboratory, is the master of this information. For this reason, it seems wise to use natural sources of vitamin and mineral supplements as well as special foods.

SYNTHETIC VS. NATURAL VITAMINS

This is a highly controversial subject. Chemists insist that a vitamin is a vitamin, synthetic or natural, and that the formula is identical. This may be true in the chemical tests they perform. But whenever this subject arises, I recall the story of the fish that began to die in chemically made sea water.[11] The water had all the known substances, in exact proportions. But the fish was still dying, until it was put back into natural sea water, when it promptly recovered. The explanation may be, that if a difference does exist, it is due to the presence of unknown factors which accompany vitamins and minerals in the natural state, and have not yet been identified.

In any case, the reports of favorable therapeutic effects of natural foods and vitamins continue to mount. Here are a few examples:—Silver foxes were fed[20] all the known synthetic vitamins. A control group was fed natural B vitamins, in the form of yeast and liver. Those that were fed synthetic vitamins failed to grow. Their fur deteriorated. Finally they died. Those that were fed natural B vitamins grew normally, developed beautiful fur, and lived long.

A group of mice were placed on a diet[21] including all known synthetic vitamins. They grew for a few days, then their growth stopped. In twenty days, their hair began to fall out and their backs became hunched. At the same time, another group of mice that were fed the same diet plus natural vitamins in brewer's yeast, remained healthy and free of these disturbances.

When patients with digestive disorders were treated[22] with brewer's yeast (a source of the B complex) there was either great improvement or complete recovery from distressing symptoms. But when the yeast was removed and single synthetic vitamins B1 and B2 substituted, the symptoms returned. The experiment was then reversed, giving the synthetic vitamins first. The results were not beneficial. But when yeast was given again, all symptoms disappeared.

Michael Rabben, D.D.S. wrote:[12] "The inorganic, crystalline, or synthetic vitamin has a special use in the diet. Crystalline vitamins are always used . . . in high potency—as drugs. Their action is rapid compared to the organic (natural) vitamin, and they are extremely useful in the *acute* situation. Their action is specific but not without side effects. It is precisely this characteristic that often produces the toxicity of which these vitamins are capable. It must be remembered that synthetic vitamins are fractions of vitamin complexes.

"Toxic reactions with organic vitamins do not occur if used in higher than usual dosage for some acute condition."

The United States Army Nutritional Manual[23] recommended: "Whenever possible, the nutrients required should be obtained from natural foods rather than synthetic preparations. This is particularly true of vitamins. Synthetic vitamin concentrates, tablets or pills may not contain all the known nutrients, either as such or in optimal proportion. Furthermore, they obviously may not contain lesser known or unknown nutrients which are, however, provided by natural foods."

Dr. A. J. Carlson of Chicago University remarked:[24] "On the whole, we can trust nature further than the chemist and his synthetic vitamins."

HOW CAN YOU TELL IF A SUPPLEMENT IS NATURAL OR SYNTHETIC?

There are a few reputable companies which specialize in making vitamins entirely of natural materials.[25] There are other companies which make their vitamins partly of natural materials, but use some synthetics. Then, there are some vitamins which are made of natural materials, such as rice polishings, brewer's yeast, liver, butter, or citrus fruit, but they are reduced to pure simple crystalline or powder form. Although these *crystalline vitamins* are from natural sources, they have been separated from their natural synergists, or helpers, found with them in a natural state. Once these crystalline vitamins have been isolated and their molecular formations determined, then they can be duplicated in the chemical laboratory by assembling the component parts from chemicals already available. Some of these are coal-tar products. Then they have the same molecular formations, the same chemical reactions, and are equivalent to the crystalline vitamins which they imitate. But neither these synthetic vitamins, nor the crystalline vitamins are natural in the sense of retaining their original complex enzyme systems. Naturally, *you must learn to read labels*. It is wise to deal with those companies which label their products as completely natural.

The chromatograms of Dr. E. E. Pfeiffer reveal the biological differences between natural and synthetic vitamins. Photographing of these chromatograms as well as testing programs are conducted at Dr. Pfeiffer's laboratory at Spring Valley, New York.

CAN YOU GET EVERYTHING YOU NEED IN ONE CAPSULE?

It is not possible to get everything you need in one capsule. There simply isn't enough room. On most labels, you will notice directions which specify that *a certain number* of the capsules supply the specific vitamins and minerals which supply a certain percentage to meet minimum daily requirements.

WHEN SHOULD YOU TAKE YOUR VITAMINS?

Some authorities believe that it is better to divide the day's dosage into thirds, and ingest them with each of the three meals. In the case of the B vitamins or water-soluble vitamins, any excess may be washed out of the body with liquids. Vitamins, being concentrated, are potent. Therefore it is not wise to take them on an empty stomach.

WHAT SHOULD YOU PAY FOR VITAMINS?

This is a difficult question to answer. Vitamins (and minerals) that are derived from natural sources, or foods grown in good soils uncontaminated by additives, sprays, and the like, will probably be more expensive than those which are mass-produced, synthesized, and with a disregard of growing practices. If vitamins are compounded in small lots, including overhead costs and a fair profit, they cannot be sold cut-rate. By now you should realize, however, that nutritional food cannot be produced cheaply either; nor can we build for health using cheap materials.

It is true that some ingredients are more costly than others. Vitamin E is one of these. The Doctors Shute, of Canada, who have conducted extensive vitamin research with heart and other disturbances, feel that although dosages must be regulated to fit each particular case, most people do not get enough vitamin E. Even though it is found in foods, it is not always assimilated. For this reason, the Doctors Shute consider that dosages less than 50 to 100 units of alpha tocopherol (a form of vitamin E) rarely are beneficial. They often prescribe many times this amount, beginning with a low dosage, and gradually increasing it to the point where improvement is evident. Only in cases of high blood pressure are large amounts of vitamin E possibly dangerous, according to these physicians. In these instances, small amounts should be increased gradually *under medical supervision* until the individual tolerance is determined.

Since the need for vitamin E varies, and since the amounts found beneficial by Doctors Shute is high, multiple vitamin supplements might be selected which do not contain vitamin E. It might be wiser and less expensive to select a separate source for vitamin E.

The American Journal of Clinical Nutrition (November-December, 1960) reported that therapy with vitamin E has sometimes met with failure. This has dampened the enthusiasm of some physicians. However a recent study, reported in *Lancet*, explained some possible causes for such failure: "1. Large doses of the vitamin are necessary. 2. No improvement may occur for as long as several months after treatment begins. The improvement seems to be lasting." Other investigators have found that vitamin E in *natural* form is most effective.

WHAT ELSE SHOULD I KNOW ABOUT VITAMINS?

The phrase, "The need for—in human nutrition has not yet been established," should be evaluated for its true worth. Until some forty years ago, not a single vitamin had been isolated! The phrase merely means that the particular vitamin (or other substance) has been tested on animals, but that reports on its use with human beings have not yet been completed, accepted, or incorporated into nutritional literature. Sometimes it takes a long time for laboratory information to reach the public.

At present, there are some twenty odd vitamins now known and isolated. Knowledge about them is still limited. We still have a lot to learn about vitamins.

ADDITIONAL BENEFITS OF VITAMIN THERAPY

Dr. Roger J. Williams, the discoverer of one of the B vitamins, found some unexpected results when he used vitamin-mineral supplements in his nutritional treatment of alcoholics. In some people, headaches vanished, insomnia disappeared. In others, muscular co-ordination and a sense of balance was restored. Others, who had high blood pressure, were brought down to normal. Some were freed of constipation, dependence on barbiturates, excessive perspiration, and hay fever. The most dramatic case cited by Dr. Williams was that of a mentally disturbed woman who thought her neighbors were conspiring to kill her. Dr. Williams reported: "She was given a nutritional supplement and in 48 hours was completely cured of her mental derangement. Body cells were involved in every one of these difficulties, and in each case it appears nutrition was at fault, and was corrected."

In the case of the mentally upset woman, the deficiency was niacin, usually associated with pellagra. "Other sufferers from this deficiency," Dr. Williams added, "have received similar benefits, and there is no doubt that nutritional supplementation in these cases is capable of revolutionizing one's thinking and acting."

WHAT VITAMINS ARE, AND WHAT THEY CAN DO

The following summary about vitamins, written[26] some forty years ago by Dr. McCarrison, is still valid. These findings were a result of his extensive studies with animals and people:

1 "Vitamins are small constituents of living tissues. They may be present in small amounts, but health is dependent on their action in the body.
2 Vitamins do not directly contribute energy, but make energy available through proteins, fats, carbohydrates. Both foods and vitamins are important.
3 Without vitamins, the body starves.
4 The amount of vitamins required depends on how well the body can use them. There is great individual difference.
5 Each vitamin plays a specific part in nutrition. But all the vitamins work as a team.
6 One vitamin cannot replace another, though its function may be hampered by the absence of another.
7 All vitamins are needed to maintain well-functioning glands and tissues, which in the last analysis means good health.
8 All vitamins are necessary to maintain an orderly balance between destructive and constructive cellular processes. If this balance is disturbed, destruction sets in and cells deteriorate or "grow old."
9 The greater the deprivation of vitamins, the more rapid the onset of symptoms resulting from the lack of vitamins.
10 Vitamins influence markedly the production of hormones in the body.
11 Vitamins aid the tissues in resisting infection.
12 Vitamins act as spark plugs in the body.
13 Extreme lack of vitamins and proper food means rapid dissolution and death. Partial deprivation means slow dissolution and disease. This state of slow dissolution is commonly known as old age.

14 This concept of vitamins and their effect on the body is very encouraging. Cells already dead cannot be restored, but by vitamin therapy the functioning of the mass of body cells can be restored to normal.

15 Vitamins when separated from the rest of the team may cause trouble. If they are used in amounts and combinations in natural unprocessed form, they will be safe, because they are balanced carefully in nature's laboratory."

13. What About Minerals and Enzymes?

We used to hear only about vitamins. Now we have learned that without minerals, vitamins may not be utilized properly in the body. Some researchers consider the minerals even more important than the vitamins. In any case, we should recognize the vitamin-mineral teamwork. If you are aging too fast, the lack of minerals in your diet may play a role. Your body needs at least sixteen minerals to maintain the health and youth of nerves, muscles, brain, heart, hair, and blood. These minerals need to be replenished constantly.

D. T. Quigley, M.D. wrote[1]: "We do know that the person who has a sufficient intake of calcium, iron and iodine . . . (plus vitamins) will have a resistance against ordinary disease in excess of the average person. Such persons will have more freedom from fatigue and greater ability to work; will live with the retention of all physical faculties to a greater age, and will have a better mind than the person who suffers from some single or multiple vitamin or mineral deficiency. The various vitamins and minerals are all necessary. No one can be omitted if an individual would retain good health."

Dr. Weston A. Price took back with him to his Cleveland, Ohio, laboratory, specimens of the foods eaten by primitives he had studied in various continents. Upon analysis for mineral and vitamin content, he was startled to find[2] that in many cases the diets of these primitive peoples contained *up to ten times more* of all the nutritional factors than the meager nutritional factors in the "civilized" diets.

In recent years, there has been more and more appreciation of the role of the trace elements in our diets. In a chapter devoted to them in the U.S.D.A. Yearbook on *Foods*,[3] the following statements were made: "At the present stage of our biological knowledge . . . we cannot ignore the possibility that some of the trace elements we now think of as nonessential do have as yet unrecognized functions in the body's processes. . . . One of the great problems today is to set standards for fixing the need for trace elements or any constituents of diet. The old attitude was that a constituent is essential if slow growth or none or death results from failure to include it in the diet. It has been apparent for some years that that definition is not good enough. . . . The establishment of minimal dietary requirements for the trace elements is a difficult problem, for many factors may affect their absorption and utilization."

HOW CAN TRACE MINERALS HELP?

Trace minerals are so named because they[4] exist in foods in minute amounts. Michael Rabben, D.D.S., reported: "While inorganic trace minerals are satisfactory for the treatment of acute conditions where they are employed as drugs, and as a temporary measure, the intake of trace minerals to maintain health is best accomplished in the form of food. If they are taken as supplements, they should be in the form of an organic plant because nature has balanced the constituents in a manner that is still beyond comprehension."

There are many examples of the use of trace minerals in restoring health. These are two: In a paper authored jointly by Drs. Pottenger, Allison, and Albrecht, this statement appeared:[5] "Such varied symptoms [in human patients] were initially present as to be too baffling for accurate diagnoses. Yet they disappeared after consumption of trace element salts and carefully regulated, high-protein, low-sugar diets during some 12 weeks or more. Relief occurred from this vast array of symptoms, which included aches of the back, shoulders and joints, allergies, arthritis, anorexia, hyperidroses, fever, constipation, enlarged spleen, mental depression and others amounting to a list reportedly as large as 200."

"The value of trace minerals in the treatment of angina pectoris was discovered by accident," related[6] Melvin E. Page, D.D.S. of the Page Foundation for Biochemical Research. Dr. Page noticed that several patients with angina improved after beginning the use of trace minerals which had been administered for other disturbances.

Experiments showed[7] that rats could live throughout an entire life span on cow's milk, cod-liver oil, and trace minerals. When these rats died of old age, their bones were stronger than another group of rats fed differently, and their teeth were without decay.

It has been demonstrated[8] that mineral-deficient soils produce mineral-deficient foods, mineral-deficient animals, and mineral-deficient humans. Erosion, leaching, and poor farming practices share some responsibility. Fortunately, we know where these mineral riches have gone. Every year, as our soils become more impoverished, the seas become richer in these minerals. For this reason, we may turn to the sea and its bounty for a rich and natural supply of minerals found in the seaweed products: kelp and dulse.

KELP AND DULSE

Seaweed is rich in trace elements. Besides iodine, kelp contains calcium, phosphorus, iron, copper, potassium, magnesium, sodium, manganese, sulphur, and other trace elements totaling twenty-two known minerals in all. The iodine in seaweed is in the same form of amino acids as it occurs in the thyroid gland. A shortage of iodine causes fatigue, goiter, and gray hair in some individuals. Adelle Davis wrote:[9] "Even large goiters disappear when sufficient iodine is taken together with an adequate diet; the process is slow but eventually new, healthy cells do replace the abnormal ones."

Many physicians never let a person past forty out of their offices without prescribing iodine in some form to help increase energy. Kelp and dulse include iodine, as well as many other known trace elements, as well as some probably not yet known or identified.

Dulse, or sea lettuce, another form of seaweed is processed in New Brunswick, Canada, into powder and pills, as well as dried leaves. A friend of mine told me that when she traveled in Nova Scotia she stopped for lunch in a little town on the Bay of Fundy. She noticed that many of the children were munching something out of brown paper bags as they walked along the streets. When she saw some of the children emerge from a grocery store with these bags, she went into the shop to find out what it was that the children were eating. The grocer explained that it as dulse. He went on to say that children in that area eat dulse as other children nibble on candy. They start at an early age. My friend remarked about the healthful appearance of those children.

The kelp or dulse tablets should be considered what they are: food, not drugs. The powdered form may be used as seasoning in soup, drinks, etc.; the dried leaves may be eaten as a nibble, or chopped fine and added to soup, chowder, salads, etc.

WHAT ABOUT CALCIUM?

Some people are wary of taking calcium because they are afraid that it will be deposited in their joints and cause arthritis. What is the truth? Physicians who specialize in nutrition have discovered that just the opposite takes place. Calcium may exist in the blood stream without being utilized properly. Many patients sufferings from arthritis have been found to be *deficient* in calcium. A lack of calcium may also cause irritability, jangled nerves, sleeplessness as well as bone and tooth fragility. The administration of calcium has been found useful as a pain reliever. It is a safe substitute for tranquilizers.

WHAT FORM OF CALCIUM IS BEST?

Evidently calcium is used by the body in numerous forms.

One source of great value for tooth and bone development in children is found in certified raw milk. According to a study,[10] other sources include:

—Dicalcium Phosphate: This was found to be poorly assimilated because of its relative insolubility.
—Tricalcium Phosphate: This was found to be unsatisfactory.
—Calcium Carbonate: This was also found to be unsatisfactory.
—Calcium Gluconate: This had high solubility but its effects were not outstanding even where acute deficiencies existed.
—Calcium lactate: This produced dramatic results in some cases of calcium deficiencies, such as fever blisters and canker sores, but failed in other cases.
—Calcium glycerophosphate: This was superior to all supplements because of its solubility and its calcification of bone. It also supplied phosphorus and prevented calcium loss through excretion.

Royal Lee, D.D.S., says, "Chalky teeth can be converted into hard translucent normal teeth, as a rule, by the use of calcium lactate and vitamin F." (Vitamin F is derived from the unsaturated fatty acids.)[11]

BONE MEAL

Bone meal has been recognized as a valuable source of calcium. Dr. Irvine McQuarrie, head of the Department of Pediatrics at the University of Minnesota, considers veal bone as a "nearly complete mineral supplement because of its content of nutritionally significant trace elements as well as calcium and phosphorus, which are present in suitable proportions. The importance of traces of copper, manganese, nickel, and fluorine is already recognized by nutritionists."[12]

Bone meal is ground beef or veal bones. It may be obtained in tablet or powder form. For safety, it is advisable to purchase bone meal that has been steam-sterilized. This information should appear on the label.

Dr. William N. McCartney wrote: "Bone meal is a natural food, physiological, harmless, and can be given safely in any dose . . . I have treated many cases of delayed union in fracture cases. In no case where the bones were in reasonable apposition have I failed to get sufficient callus formation [with bone meal] and an eventual good union. It is inexpensive. It is safe to use in almost any conceivable condition where such treatment is indicated."[13]

Nutrition-minded physicians advise that it is far better to take a regular supply of calcium for prevention, than to wait for bones to break.

Dr. Clive M. McCay reported[14] that studies done in Iowa State College showed that older women lost calcium from their bodies faster than they could store it from food. He said that bone meal is the only source of fluoride which does not mottle teeth. This is because it is a natural product, which combines calcium, phosphorus, and fluoride in safe and balanced amounts.

Royal Lee, D.D.S. stated: "Bone meal will often tighten up loose teeth and will restore health in most cases where the bone has been severely damaged by pyorrhea and for the patient who cannot wear dentures successfully because of receding tissues. Even the mucous membrane becomes tough and resistant to pressure after the use of raw bone meal."

Bone meal may be obtained in tablet or powder form. The powder may be mixed with flour in baking, it may be mixed in drinks such as "Tiger's Milk," etc. It is quite bland and flavorless.

Recently, another source of calcium has been discovered in the egg white substance known as Chalaza. A researcher compared[15] various types of natural calcium, including limestone, ground calcite rock, calcium carbonate, ashes from red oak bark, bone meal, as well as egg calcium and egg white albumin. The tests revealed that the egg white calcium had greater solubility and anti-acid action, and a greater capacity to support life. In addition to offering calcium in a form easily utilized, the Chalaza analysis revealed the following amino acids:

Arginine	4.3
Aspartic Acid	6.4
Cystine	10.7
Glutamic Acid	10.7
Glycine	1.2

Histidine (E)	2.1
Leucine (E)	3.3
Lysine (E)	2.1
Methionine (E)	3.3
Phenylalanine (E)	2.1
Proline (E)	3.2
Threonine (E)	4.3
Tyrosine (E)	2.1
Valine	1.1

Bone marrow also helps the body utilize calcium properly as people grow older. Since bone marrow has also been found as a source of protection against radiation, the new bone meal-plus-bone marrow tablets are believed by some experts to[16] be a safer source of calcium than milk. This is because milk may be a source of radiation.

It is common knowledge that any type of calcium is not utilized without vitamin D. However, it is not commonly known that calcium also needs vitamin F, found in fish and vegetable oils, for proper utilization. Vitamins F and D co-operate in calcium assimilation. Cod-liver oil is a source of both of these vitamins.[17] Acid in the stomach is also necessary for calcium absorption.

Older persons who have lost their teeth sometimes feel that it is no longer necessary to be concerned with their supply of calcium. But this is unwise. Receding gums and the loss of teeth can follow a diminishing supply of calcium. Even when dentures are worn, the jaw bone, without sufficient calcium intake or assimilation, can change so much that the dentures begin to fit poorly, create poor chewing and poor digestion, and may even make a new set of dentures necessary.

A NEWLY DISCOVERED "YOUTH" MAGIC

In an article, "Make Cells Grow Younger," Brown Landone wrote:[18] "More than twenty years ago experiments were made on old decrepit rats. They were so old that, proportionately, they were about as old as a man of ninety years. These decrepit old rats were fed with what were then called immature foods, that is, foods which had not finished their growth, sprouting new stems and very young leaves. The results were amazing. The decrepit old rats were transformed, and their bodies began to grow younger!

"No one understood the cause of this. The experiments had been conducted to test effects of vitamins, but with larger amounts of vitamins in matured or full grown foods, the rats did not grow younger. Hence, scientists knew there was something else other than vitamins which worked like magic in growing youthful cells.

"Several years passed and no one tumbled to the . . . significance of that experiment. Then some five years ago I began experimenting with young growing plants, in this case sprouts of bean seeds. I had used sprout foods for more than a generation, but had no proof of what caused them to be of value.

"At about the same time other scientists discovered a root-auxin in plant roots. When they extracted this auxin from the tip of a young growing root, and pasted it on the edge of a leaf, roots grew even on the edge of a leaf! This is the miracle of auxinon foods—they induce growth after their own kind of activity. A root auxin will grow roots and a youth auxinon will grow youthful cells.

"Youth growing substances from new growing sprouts will induce cells to grow younger. There is 'something' in the chemical substance of a youth growing auxinon which, when you eat it as a food, makes the cells of your body reproduce younger cells instead of older cells.

"The best auxinon foods I know of are found in Mung bean sprouts. Mung beans are Chinese beans."

Dr. Weston A. Price[2] isolated a similar substance in the tips of young spring grass which he found promoted healing. He called it "factor X."

Drs. Graves and Miller[19] took eleven cows which, though otherwise normal and formerly bred many times, were infertile and could not reproduce. They fed these cows sprouted oats, soaked for five days. The cows, eating this diet for sixty days, were able to be bred and reproduce. The method produced favorable results with all eleven cows.

Dr. E. E. Pfeiffer stated that he has never failed to bring back a bull to "service," provided he could fully control the bull's diet and provide him with sufficient sprouting grains.

Dr. Francis Pottenger, Jr. found sprouted legumes and grains to be complete proteins. During sprouting, the beans lose their objectionable gas-producing quality.

WHAT ARE ENZYMES?

Enzymes are a group of proteins. They are catalysts which direct or hasten chemical reactions in living things. They exist in every living cell in your body. They also exist in your food. There are many varieties which perform many functions in your body and are manufactured from your food. Although an enzyme is a protein, according to Harrow and Mazur, "in many instances for an enzyme to be active, some cofactor of a nonprotein nature is required." Also, " . . . enzymes are very susceptible to heat and temperatures from 50 C and up for any length of time . . . very rapidly destroy them."[19a]

COOKED VERSUS RAW FOODS

Wild animals eat raw food. Animals in zoos were formerly given cooked food, until the animals began to exhibit the same diseases as man. Today, zoos try to give animals raw foods to which they are accustomed in their natural state. As a result, the mortality rate of these animals has dropped.

Francis F. Pottenger, Jr., M.D. carried out a study[20] which has become famous in the field of nutrition. He used 900 cats, and divided them. The first group was fed raw milk and raw meat. These cats remained healthy, and produced healthy kittens from generation to generation. The other group were fed exclusively on cooked food and pasteurized, evaporated, or sweetened condensed milk. This group displayed many of the ailments of our modern civilization: gingivitis, loss of teeth, loss of fertility, difficulty in labor, irritability, diminished or perverted sexual interest, allergies, infections, diarrhea, pneumonia, heart trouble, kidney disease, thyroid disease, paralysis, etc.

Colored moving pictures were taken of these cats. The first generation showed sleek and healthy animals. When they were dropped from a moderate height, they landed nimbly on their feet.

The second generation appeared a little scrawnier and less healthy. When they were dropped from the same height, they toppled over, as cats should not do, but managed to right themselves. Flat feet and sway-backs were already apparent.

The third generation, when dropped, could not get up. In addition, they suffered from a variety of ailments. They were a sorry lot to behold. Since viewing this film, every time I view a person struggling down a street as if movement were an exhaustive strain, I think: There goes a "third-generation cat."

When the ailing, third-generation cats in Dr. Pottenger's study were returned to raw food, regeneration began to take place, providing the degeneration had not progressed too far. In the serious cases, complete regeneration required four generations.

Raw foods possess enzymes. Cooking, pasteurizing, pickling, smoking, and other processings denature enzymes. H. E. Kirschner, M.D., author of *Live Food Juices*, demonstrated visually[21] as well as verbally the value of raw vegetable juice therapy in restoring health to patients suffering from a variety of illnesses. Similar testimony[22] is given by Fred D. Miller, D.D.S. relevant to oral health.

Obviously, it would be unwise to insist that everyone confine his diet to 100 per cent raw foods, especially if all his life he has eaten mostly cooked or processed foods. Those unable to eat roughage are restricted on raw foods, but not raw juices. A cooked carrot liberates more easily utilized vitamin A than a raw one (but not as much as raw carrot juice). Raw meat is considered unsafe because of possible contamination of parasites transmitted by people handling the meat.

Nevertheless, it is true that we cook too much and eat too much "dead" food, in the sense of its being deprived of life and youth-giving elements. We should remember that before fire was invented, man ate his food raw.

A Russian scientist, Kouchakoff, discovered that when cooked food is eaten, the white corpuscles (those which mobilize to fight infection) increase in the intestines following a meal. If raw food is eaten, however, the white corpuscles do not increase. Bircher-Benner discovered[23] that if you begin your meal with raw food *before* you eat cooked food, the white corpuscles do not increase. For this reason, he suggested that salads should be eaten first.

Dr. James B. Sumner claimed[24] that if you are getting that fortyish feeling, it is because the enzymes in your body become fewer and weaker as you add years to your life. This results in a withering process which is observable in people, animals, and insects.

Tests conducted on older people have revealed[25] that the body, without sufficient raw materials from raw foods, may tire and produce fewer enzymes year after year. This may lead to wrinkling of skin, thinning of hair and sagging of muscles and figure, as well as lack-luster eyes. In other words, you may look worn-out because your body processes are wearing out. So, by supplying your body with minerals and enzymes, as well as vitamins from raw food, you may prolong health, youth, and life.

14. What About Fats and Oils?

In the last few years there has been a great deal of popular interest in the subject of fats and oils. Laymen as well as professionals have read and heard a great deal about terms such as "unsaturated fatty acids," "cholesterol," "hydrogenated fats," "lecithin," etc. Much confusion has resulted, especially since many contradictory statements have been issued. I shall attempt to give you a few elementary, basic facts, and then report some of the recent findings which are of interest.

HOW DO FATS AND OILS DIFFER?

Fats are solids or semi-solids at room temperature. Oils, of course, are liquid. However, oils are sometimes converted into solid fats by the process of hydrogenation.

WHAT IS MEANT BY UNSATURATED FATTY ACID?

Fats and oils are comprised of "unsaturated fatty acids" as well as "saturated fatty acids." Individual fats and oils differ in the amounts of both; some are highly saturated, others are highly unsaturated, still others are in between. This will be noted in any listing of fats and oils. Different tables list them somewhat differently. Here is a listing[1] for you to examine:

UNSATURATED FATS—(listed in the appropriate order of unsaturation, from greatest amounts of unsaturated fatty acids to least amounts):
vegetable oils:—sunflower, safflower, olive, sesame, soybean, corn, peanut, cottonseed
fish products:—cod-liver oil, halibut-liver oil, salmon
nuts and nut oils:—sunflower seeds and oil; peanuts and oil; avocado; peanut butter and other nut butters (if not hydrogenated)
spreads, dressings:—margarines made of vegetable oils (if not hydrogenated), mayonnaise, French dressing
dairy products:—raw cream (pasteurization greatly reduces or destroys the lecithin)
  —egg yolk (contains natural lecithin)
  —natural cheese
All whole-grain products (flours, cereals, etc.;)

SATURATED FATS—
cocoanut oil
most solid fats (hydrogenated)
processed lard
processed cheese

INTERMEDIATE FATS—
natural lard
butter
pasteurized whole milk
pasteurized cream
meat fats
poultry fats

You will notice from the above listing that, in general, the oils are high in unsaturated fatty acids, and that, in general, the fats and hardened (hydrogenated) oils are high in saturated fatty acids. The unsaturated fatty acids are known as the "essential fatty acids" because they are comprised of acids which the body cannot synthesize, and therefore must be supplied in the diet. They are essential to certain body processes. On the other hand, the fats and oils which are high in saturation are not "essential" and, in quantity, may be undesirable as you will see from some of the findings later in this chapter.

WHY ARE OILS HYDROGENATED?

Solid shortenings are easier to keep than liquids. They have a long shelf life. The "pure white," easily handled material was foisted upon the homemaker in the same way that the "pure white" flour and "pure white" sugar were made acceptable. However, recent findings seem to indicate a relationship of hydrogenated fats to atherosclerosis and heart disease. Dr. Frederick J. Stare told[2] the American Chemical Society in 1956 that the greatly increased use of hydrogenated fats in the past twenty-five years may be related to the rise of atherosclerosis.

Dr. Philip S. Chen wrote:[2] "Here man is learning a most costly lesson about human nutrition, namely, not to tamper with natural foods by commercial processing. He made patent flour from whole wheat. He made white rice from brown rice. All of this resulted in a loss of vitamins and minerals and as a consequence he suffered from a great number of deficiency diseases. *But these deficiency diseases fade into insignificance when compared with the more dreadful heart disease for which the use of hydrogenated vegetable fats and animal fats is mainly responsible.*" (emphasis mine)

WHAT IS CHOLESTEROL?

Cholesterol is a term which has come into common usage in the last few years. Everyone speaks of "high cholesterol" or attempts to "lower the cholesterol." It is a fatty substance found in many foods, and it can also be manufactured by the body. An experiment was performed[3] in which a calf's aorta was removed from the body. It was kept alive in solution. Within seventy-two hours, the aorta synthesized cholesterol from glucose.

As with hydrogenated fats and oils, cholesterol, too, has been under suspicion in cases of atherosclerosis and heart disease. Unsaturated oils and fats have been found to lower the cholesterol level. Other things have also been found effective, as you will discover later in this chapter. One of them is lecithin.

WHAT IS LECITHIN?

Lecithin is a natural product occurring almost universally in the cells of plant and animal life. Within the body, the largest amounts are found in the brain and nerve tissues, heart, kidneys, and endocrine glands. Lecithin plays an important role in the metabolism of fat. In natural foods containing fat, there exists a brother-sister combination of cholesterol and lecithin. Eaten together, the lecithin dissolves the cholesterol. But when the team is broken up by food processing, such as hydrogenation, the lecithin is discarded and the cholesterol is left to fend for itself. It is the old story of interfering with nature. Without a dissolver present, cholesterol can pile up in the arteries, and make trouble.

FATS AND HEART DISEASE

Someone dies of heart disease almost every two minutes in the United States.[4] Diseases of the heart and blood vessels are the leading cause of death in this country. They cause more than twice the deaths caused by cancer. They exceed the combined total from the next five causes of death below the age of sixty-five. In orthodox medical circles, coronary disease, arteriosclerosis, and atherosclerosis are considered as separate disease entities. But Dr. Philip S. Norman[5] considers them as part of a general deteriorative process involving heart, circulatory system, and all vital organs and body tissues. He discusses their close relationship to faulty nutrition, and stresses the importance of foods of good biologic quality, in adequate amounts, and in correct combinations, to maintain good health.

*Athero*sclerosis results from the depositing of cholesterol in the arteries. The deposits of this fatty-like substance causes both a thickening and hardening of the arteries. *Arterio*sclerosis results from the hardening of the artery walls by calcium deposits, usually occurring in the last ten to twenty years of life.

Does this mean that we should not eat foods high in cholesterol? When high cholesterol became implicated with heart disease, physicians put patients on diets which avoided cholesterol-rich foods. However, this was discovered to be ineffective. Even when we avoid cholesterol, the body can manufacture it. As a matter of fact, the body *needs* cholesterol. It is necessary for the manufacture of sex hormones, bile, and Vitamin D.[6] People who are afraid to eat eggs because of the cholesterol are hurting, rather than helping themselves. Eggs contain, in addition to cholesterol, important unsaturated fatty acids; lecithin, Vitamins A, B, and D; and all the necessary amino acids. Eggs are considered such a valuable source of protein that scientists use egg protein as the standard of protein measure in other foods.

DOES THIS MEAN THAT WE SHOULD ELIMINATE FATS AND OILS FROM OUR DIET?

By no means! It is true that certain fats and oil are rich in cholesterol, and the American diet is high in fat. But the problem is not to eliminate fats and oils. *It is to eat the correct kind and amount.*

Those who attempt a fat-free diet should be cautioned by the following reports:

As early as 1929, a carefully executed series of experiments found[7] that rats fed a fat-free diet soon developed scaly feet, swollen tails, dandruff on the back of the body, hemorrhagic spots and sores on the skin, and other symptoms of a diet-deficiency disease. They found that the disease could be prevented or cured by the inclusion of linoleic or linolenic acids (essential fatty acids) or fats containing them. They also discovered that the disease could *not* be prevented or cured by saturated fatty acids or fats.

Another experiment, in 1956, showed[8] that a fat-free diet on rats produced *more* rather than *less* cholesterol deposits in their arteries. The longer the diet continued, the more cholesterol accumulated. Since no cholesterol was in the diet, their bodies must have manufactured it. It accumulated because a fat-free diet deprived the rats of the essential fatty acids, which must be present in order to keep the cholesterol from depositing.

A fat-free diet leads to the formation of gallstones in experimental animals, according to a Bucknell University study. With little or no fat in the diet, the gall bladder does not empty. Bile collects and remains without enough strong muscular contractions to move it out. Fat is needed to make the gall bladder work. When it remains idle, cholesterol produced by the liver settles in it and gallstones may be formed. (This report comes from a radio nutrition commentator.)

A nine-year study, completed in 1961, found that people who ate no fat at all had the highest blood fat levels, whereas those who ate 70% fat had the lowest![8a]

WHAT KIND OF FAT AND OIL IS DESIRABLE?

The answer seems to be those that are high in unsaturated fatty acids, and in their natural state (not hydrogenated) are best. They are utilized by the body, and have been observed to keep the cholesterol level from rising.

When patients were fed vegetable oils such as olive, sunflower, or ground-nut oils, their cholesterol did not rise. But when the same oils were used in hydrogenated or hardened form, cholesterol rose promptly.

These same patients were fed twelve eggs at a time, fried in hydrogenated fat. The cholesterol rose rapidly. When the same number of eggs were fried in peanut oil (unsaturated), the cholesterol showed little or no increase in the patients. Why? Although eggs are high in cholesterol, they are also rich in lecithin which has the ability to dissolve cholesterol. The peanut oil had lecithin which could function. The hydrogenated fat did not.[9]

WHAT IS CONSIDERED A "NORMAL" CHOLESTEROL LEVEL?

180 to 280 milligrams per 100 cc. of blood is considered "normal." In the opinion of many experts,[6] a person with 350 or higher may be headed for trouble. However, there is disagreement that a high cholesterol level increases the danger of heart disease. Findings are varied:

Robert E. Olson, M.D. said:[10] "Serum cholesterol values are not infallible indices of an individual's proneness to atherosclerosis. They are simply one index which in relatively large populations correlate with the incidence of disease." He added, "We feel it is advisable for individuals over forty years of age to keep their cholesterols in the vicinity of 200 milligrams or lower."

Three Canadian scientists performed 191 autopsies and found[11] atherosclerosis in patients with low cholesterol (150 to 900 milligrams) as often as in patients with high cholesterol levels. The investigators did concede that there may be a relationship between cholesterol level and atherosclerosis when cholesterol exceeds 300 milligrams. Most physicians agree that this level is too high.

Dr. Joseph N. Looney, Boston biochemist, found,[12] in a study of 134 Spanish War Veterans, "no significant correlation at all."

There are other factors implicated in atherosclerosis. To date, these include heredity, improper nutrition (especially sugar, excessive carbohydrates, and alcohol), stress, and chemical imbalance of the body. Researchers have found that antibiotics can cause this condition in rabbits.[12a]

WHAT RAISES THE CHOLESTROL LEVEL?

Many different things have been implicated. Here are some:

alcohol—Three ounces of whisky will increase the cholesterol in the drinker's blood. Four researchers found[13] in testing thirty volunteers in Minnesota State Prison, that this amount of 100-proof whisky daily caused a "small but significant" increase in the serum cholesterol of the men.

smoking—one or more packs of cigarettes daily can elevate the cholesterol level.

sugar—Dr. Sipperstein found[14] that sugar increases cholesterol.

carbohydrates—Joe D. Nichols, M.D. reported[15] that diets high in carbohydrates increase cholesterol.

stress—Stress has been found to be a major cause of raising cholesterol level. Dr. Eleazar Shafrir and Dr. Daniel Steinberg[16] gave adrenalin injection to dogs. The cholesterol level rose quickly. Adrenalin (and cortisone) are both released in the body under stress. In turn, this produces a fat-metabolizing reaction. Dr. Meyer Friedman, of San Francisco, observed[17] that the adrenal glands of the executive-type person, usually considered a "hard driver," produced more adrenalin than the easy-going men. Such aggressive individuals suffer six to eight times more heart attacks than relaxed men.

The Air Force reported that the cholesterol level of flyers rose when they were placed on combat duty.

Another example comes from the Pentagon. An officer, employed in a routine position, had normal cholesterol when he was given a physical examination. But after having been promoted to a more important position, involving greater responsibilities, his cholesterol rose.

The cholesterol level of accountants has been found to rise rapidly from January to April 5, coinciding with the period of stress. After the deadline has passed, cholesterol drops.

butter—In an experiment,[18] people who ate ½ ounce of butter with each meal for one week were found to have a cholesterol level of 218. When only ⅐ of the amount of butter was replaced with soy sterol (probably soy lecithin) during the second week, the cholesterol level dropped to 194. When pure butter, minus the soy product, was substituted during the third week, the cholesterol rose to 209. The explanation is, that in making butter, the lecithin is washed into the buttermilk, leaving the cholesterol residue in the butter without a dissolver. Probably in our forefathers' day, they ate the butter at the same time as they drank the buttermilk. Thus they were protected by the natural combination of the cholesterol-lecithin team.

Francis F. Pottenger, Jr., M.D., observed[19] that although raw butter is able to protect the liver, heat-treated (pasteurized) butter allows liver degeneration to take place. He also considers present-day margarine to be an inferior fat to butter.

HOW CAN CHOLESTEROL BE LOWERED SUCCESSFULLY?

There does not seem to be agreement on the point that exercise is helpful in lowering cholesterol. One study,[20] with a statistically significant number of cases, was made to learn if exercise is helpful. After eating a standard meal, twenty-two men were found to have cloudiness in the blood plasma. However, when they walked or cycled following the same type of meal, the cloudiness diminished.

Another study,[21] conducted by the Department of Health at Michigan State University, had negative findings. They observed that the drop in cholesterol achieved through exercise merely paralleled the loss of body weight from the exercise.

Melvin E. Page, D.D.S., of the Page Biochemical Foundation of St. Petersburg, Florida, has observed[22] that cholesterol level can be changed by improving body chemistry.

Dr. Page is head of the Page Biochemical Foundation, a non-profit organization. The history of the foundation began when he became aware that mouth health problems such as decay and pyorrhea might be related to body problems. With the help of Mrs. Dorothy Brooks, his able assistant, together with physicians and technicians, he began to test his patients extensively. He measured their skeletal growth and tested urine and blood chemistry, since the latter not only detects the present state of health but predicts future diseases. As Dr. Page expected, he found that dental diseases did correlate with body diseases. He also learned that arthritis, high blood pressure, even weight distribution, were related to dental ills. This was an exciting discovery but the next question was, could the process be reversed?

To make the story of many years research short, the answer is Yes. He found that when the body chemistry of a patient is corrected, the body seems to heal itself and the patient acquires both dental and physical health. Today, many years later, the foundation is reversing such diseases as hardening of the arteries, arthritis, even cancer; alleviating high blood pressure and diabetes, and completely eliminating tooth decay. Physicians in increasing numbers are coming to the foundation to learn the technique which is simple, painless, and does not require a patient's hospitalization.

The treatment includes testing blood in the foundation's laboratories, one of the most complete blood-testing laboratories in the United States, measuring the skeletal growth to determine the activity of the endocrine glands which control the body, but correcting the individual's nutrition by eliminating the foods which are doing the body harm and substituting those which will help restore health of tissues, organs, and glands. Sometimes, says Dr. Page, corrected nutrition alone will do the job. If the glands have become seriously disturbed they need a helping hand, not in the large doses of endocrine substances usually available pharmaceutically, but in minute doses. This compensates for the individual glandular deficiencies until normal body manufacture takes over once more.

Needless to say, such a description oversimplifies a highly complex technique. But rewarding, even amazing results are obtained. Physicians may learn more about the process by writing to the Page Foundation, 2810 First Street, North, St. Petersburg 4, Florida.

One case history concerns a man who came to the foundation nine months after a coronary attack. I quote Dr. Page: "He had been under the care of a physician during that interval, and he had removed all fat from his diet in an effort to decrease the cholesterol level which the physician felt was an important factor in his coronary situation. The patient, Mr. X. came to the foundation office in a state of great nervousness, and was ready to sell his business and give up everything. He was discouraged, disheartened and ill."

After several weeks' treatment including the dietary regime which included putting fats back into his diet, and taking the recommended endocrine substances, he returned home. He visited his original physician who checked his new cholesterol level. It was perfect.

The physician was overjoyed. He congratulated Mr. X. on sticking to his fat-free diet long enough to get results, and assured him had he not stuck to it, his cholesterol level would not have come down. Mr. X. was furious. "I haven't been on that damn diet," he exploded, "I have been eating all the fat I want, and therefore a non-fat diet has nothing to do with my cholesterol drop!" and he stamped out of the office without telling the deflated physician what treatment *had* returned him to health.

"At the end of another three months Mr. X. wouldn't have sold his business for any money in the world. He was back on the job, traveling, handling the executive details of his business, and enjoying life tremendously."

Nutritional aids have also proved successful in lowering cholesterol. Soy lecithin is one. Dr. Lester M. Morrison described[23] how soy lecithin granules succeeded in lowering cholesterol and reversing atherosclerosis in thousands of his patients. Dr. Morrison also stresses over-all nutrition to improve their chemical balance. Drs. Friedman, Byers, and Rosenman[24] found that lecithin literally pulled cholesterol out of the arteries and dissolved cholesterol plaques already laid down.

Vitamins have been found helpful in lowering cholesdoxine (Vitamin B6) was removed from their diet. Yet this is one of the vitamins removed from "enriched" flour. It is present in whole-grain flours and cereals. Vitamin B 12, when given orally daily or by injection weekly, resulted in a definite decrease in cholesterol, according to a study.[26] Vitamin C was also found[27] to help regulate cholesterol. Vitamin E was found[28] to be another aid. When Vitamin E was administered to animals and people in large doses, the level of cholesterol was reduced in a high percentage of cases.

At least one mineral has been found helpful. Iodine was noted[29] as an important factor in regulating the thyroid gland, which in turn regulates the cholesterol production. Iodine is found in sea foods and kelp.

The use of crude, pressed oils and fats low in saturation are also helpful. Cod-liver oil has been found[30] to have a potent effect in lowering cholesterol.

WHICH OILS SHOULD YOU USE?

Shopping for good oil requires knowledge. Most commercial oils are *processed* and *refined*. What does this mean? Processing is a commercial attempt to convert a natural, dark oil into a more attractive light oil for sales appeal. In refining, the valuable substances that have the property of lowering the cholesterol are removed. Linolenic acid and other unsaturated acids, as well as Vitamin E, are lost. The crude oil is bleached. This removes the chlorophyll and some Vitamin A in the form of carotene. The oil may be filtered, deodorized, contain preservatives, colorings, solvents, antioxidants, or other additives. To uninformed housewives, processed and refined oil appears acceptable. It has a good color, flavor, keeping quality, and it does not smoke at high temperatures. However, the informed housewives will seek oil that is *pressed* and *crude*, or unrefined. Crude soy oil was found[31] to contain almost twice as much Vitamin E and lecithin as refined soy oil.

Dr. M. K. Horwitt reported[32] that diets high in refined corn oil or cottonseed oil, without the addition of Vitamin E to the diet, caused brain damage in chickens. He reported the case of at least one child who had suffered. He claimed that brain damage, ulcers, and blood changes in adults could result from this condition.

"An Italian chemical journal suggested[33] that rigid standards be enforced to differentiate between refined (pure) olive oil and virgin olive oil. The refining process destroys, removes or alters the vitamins, lecithin, and unsaturated fatty acids of the more valuable virgin olive oil."

Naturally pressed, unrefined oils are usually available at health food stores, and other special outlets. They may also be obtained through mail order. (See Appendix of Chapter 8, #15.) They should be purchased in small quantities, kept refrigerated, away from light, and used as quickly as possible. Many housewives have discovered that these oils may be substituted for saturated fats in many instances. Oil may be used in cakes, pies, cookies, breads, and muffins. Oil may be used to grease pans, to sauté, etc. Dr. Edward H. Ahrens, Jr. and co-workers urged[34] that the greater the substitution of unsaturated fats and oils for saturated ones, the better the results.

For heart protection, Dr. Morrison suggested[23] the following five-step plan:

1 Take daily as a food supplement, preferably at breakfast, 2 to 4 tablespoons of lecithin granules.
2 Add B complex in its most potent form to your diet. (Dr. Morrison advocates brewer's yeast.)
3 Add daily 25,000 units of vitamin A and 150 milligrams of vitamin C.
4 Take 2 tablespoons of soy, corn, or safflower oil daily.
5 Include 2 to 4 tablespoons of wheat germ.

Along with a recognition of the value of oils rich in unsaturated fatty acids should also come a recognition of the hazards of the hydrogenated fats. One nutritionist wrote[35]: "Unfortunately food manufacturers have become hydrogenation-happy. Each year the list grows longer: margarine, hydrogenated cooking fats, processed cheeses, and now peanut butter, formerly such an excellent food for children, and even lard. If lucky, however, you can still find an occasional market where peanuts are put into a grinder and untinkered-with peanut butter comes out before your eyes. Old-fashioned cheeses and some natural lard are still available. French dressing, mayonnaise, and salad oil appear to be the only good sources of the essential fatty acids left."

15. "Wonder Foods"

The so-called "wonder" foods are higher in vitamin-mineral content than the usual foods we eat. Some of them are extremely concentrated. They are usually a good value because they represent an inexpensive way of getting vitamins and minerals, sometimes much cheaper than in pill or capsule form. Because they are so potent, you can obtain a large amount of nutrition from a small serving of these foods, compared to larger servings of other foods.

They are not "miracle" foods in the sense of being cure-alls. But, as someone remarked, "If we have wonder drugs, why not wonder foods?" Let's examine some of them, in the light of scientific findings.

BLACKSTRAP MOLASSES

The following is an analysis from the *Journal of the American Medical Association*:[1]

Blackstrap Molasses
Milligrams per hundred grams (5 tablespoons)

calcium	258 (milk has only 120)
phosphorus	30
iron	7.97
copper	1.93 (helps the body to utilize iron)
potassium	1500
B vitamins:	
inositol	150 mg.
Thiamin (B-1)	245 micrograms
Riboflavin (B-2)	240 micrograms
Niacin (anti-pellagra)	4 milligrams
Pyridoxine (B-6)	270 micrograms
Pantothenic Acid	260 micrograms
Biotin	16 micrograms

A nutritionist[2] wrote: "Cane juice, like any other vegetable juice, contains many vitamins and minerals. When it is boiled down into black molasses, the nutrients not harmed by heat are concentrated to about thirty times that of the original juice. Pure sugar is then crystallized out and removed, leaving in the remaining molasses, known as blackstrap, minerals and heat-stable vitamins some ten times more concentrated than in ordinary dark molasses. A tablespoon of blackstrap supplies as much calcium as does a glass of milk and as much iron as do 9 eggs. This molasses also supplies generous amounts of all the B vitamins except B-1 and folic acid, which are harmed by boiling. Ordinary dark molasses has great nutritive value compared with refined sugar, which contains no vitamins or minerals, or with raw sugar which contains an insignificant amount of a few minerals; blackstrap molasses, in comparison with sugar, can be considered a miracle food."

Blackstrap molasses has a high content of inositol. According to Dr. Gustav Martin,[3] in addition to its other values, inositol relieves constipation. For this reason, blackstrap molasses is laxative.

Another value of blackstrap molasses is its use with the "Wulzen factor." Wulzen and Bahrs induced arthritis in guinea pigs. Joint and wrist stiffness appeared. When the animals were laid on their sides, they were unable to right themselves. There were two substances which were found[4] that prevented or cured these arthritic symptoms: raw cream, or sugar-cane molasses.

A medical dictionary recommends molasses for nutritional-anemia. Its iron content is helpful. Adelle Davis described[5] one overanxious couple who administered blackstrap molasses to their anemic child straight from the spoon. The anemia disappeared. However, the sticky molasses adhered to the teeth and caused tooth decay. For this reason, it is advisable to mix blackstrap molasses with milk or some other liquid, or to rinse the mouth thoroughly if the molasses is taken from a spoon.

YOGURT

Although yogurt has a nutritive content similar to fresh milk, its special values for therapeutic purposes are extensive. In a Turkish study, which was later confirmed by the Serum Institute at Copenhagen, yogurt was found to have bactericidal value. It destroyed two types of human T.B. bacilli, one type of bovine T.B. bacilli, as well as other types of bacteria. Autopsies of animals revealed that they were completely free of infection following the incubation period, from five to twelve hours after being fed yogurt. Results were the same, regardless of whether the yogurt was refrigerated twenty-four, forty-eight, or seventy-two hours. Bacterial action was lost, however, if the yogurt was dried or stored.

Shepard Shapiro, M.D. reported[6] on the effectiveness of controlling antibiotic-induced gastrointestinal symptoms by using yogurt. One of the most frequent side effects of antibiotic therapy is sterilization of the bowel. The resultant diarrhea produces great discomfort. Yogurt was found beneficial in restoring the normal floral pattern of the intestines, and at the same time it inhibited undesirable organisms. Results obtained were uniformly favorable.

In a forum discussion[7] it was revealed that an eight-ounce jar of yogurt has an antibiotic value equivalent to fourteen penicillin units. The most potent yogurt for antibiotic factors is that which is seven days old.

Yogurt also aids digestion. According to *Lancet*,[8] regular milk is only 32 per cent digested after an hour in the digestive tract, whereas 91 per cent of the yogurt is digested within that same period of time. If yogurt should cause temporary intestinal gas, this is considered a clue to the fact that the body's need for it is great. The beneficial bacteria of yogurt, when first introduced into the body, may wage war with the unfriendly bacteria already residing there. However this discomfort, if experienced, is usually mild and of short duration. As soon as the beneficial intestinal flora multiply sufficiently, discomfort disappears.

Yogurt is beneficial to all ages. The late Dr. William MacNider[9] frequently remarked, "The originator of Lactic Acid Milk has saved the lives of more children than the originator of Diphtheria Antitoxin." For adults, many people find that yogurt is far more helpful in cases of indigestion than antacids, alkalizers, or bicarbonate of soda.

Yogurt is a form of lactic acid or fermented milk. It may be prepared from whole or skim milk, raw or pasteurized, from cow milk, goat milk, or soy milk. Yogurt culture was brought to America by the famous Rosell Institute of La Trappe Monastery in Canada. It is now sold widely through many sources.[10] For homemade yogurt, see Chapter 18.

Adelle Davis wrote:[2] "A form of milk about which you will hear much in the future is the Bulgarian-culture milk, yogurt. People who eat yogurt enough to develop a taste for it, almost invariably become enthusiastic about it, often notice a marked pick-up in health following its use. . . . This milk has long been the principle food of the Bulgarians and is considered responsible for their unusual health. These people are noted for retaining the characteristics of youth to a late age, and for unusually long lives. The 1930 census showed that there were more than 1600 Bulgarians over 100 years to every million of population compared to only 9 persons in America. It's a safe guess that 90% of the American centenarians are anything but spry, whereas the Bulgarian oldsters are said to be romping around like mere 60 year olds. Moreover, it is said that baldness and white hair are almost unknown in Bulgaria."

The acidity of yogurt increases with storage. The acid content helps calcium to be assimilated better. It also aids the body's own manufacture of the B vitamins. It supplies the body with predigested protein.

Yogurt is also beneficial in relieving constipation. A controlled study was reported[11] of adding yogurt to prunes, in the form of prune whip, to study the effect on bowel habits. The addition of fruit or fruit juices does not affect the bacterial flora of yogurt or its physiological effect.

Although yogurt is looked upon by the uninformed as a "fad," nothing could be further from the truth. "Fad" is a trivial fancy adopted for a short time and then dropped. Actually, yogurt has been used since Biblical times, as a food and to eradicate intestinal putrefaction and autointoxication.

OTHER CULTURED MILKS

There are other fermented milks which are also used. They include acidophilus milk, kumiss, kefir, and buttermilk. Acidophilus milk is less stable than yogurt. It can be used only within a period of about two days, whereas yogurt may be used for two weeks. Kefir is made by placing Kefir grains, which are colonies of milk-fermenting yeasts and bacteria, in milk and allowing it to sour. There are no special conditions or equipment required to culture Kefir. The culture itself can be kept active for years without replacement, or it can be dried and stored for future use. Kefir has many nutritional and physiological values similar to other cultured milk. It has a very low curd tension, and breaks up very easily into extremely small particles. (The yogurt curd holds together or beaks into lumps.) These small particles facilitate easy digestion. For this reason it is especially recommended as an infant food, a convalescent food, or a food for elderly persons, or those with insufficient digestive activity.

Kefir has also been found to stimulate the flow of saliva, probably due to its acid content and the slight carbonation. It increases the flow of digestive juices in the gastrointestinal tract. It stimulates peristalsis in the intestinal tract. Dr. Orala-Jensen, a noted Danish dairy bacteriologist, claimed[12] that Kefir has an even higher nutritive value than yogurt due to the abundance of the yeast cells which are digested, and by the beneficial effects on the intestinal flora.

WHEAT GERM, AND WHEAT-GERM OIL

Until 1959, the Food and Drug Administration had considered Vitamin E as among those vitamins for which the need in human nutrition had not been established. However, in the opinion of nutrition scientists, recent evidence showed that this vitamin is needed in human nutrition, and the Food and Drug Administration revised its former judgment.[13]

Wheat germ has been given high recommendation by the Agricultural Research Administration of the United States Department of Agriculture, in the following statement: "Studies recently conducted in the Bureau of Human Nutrition and Home Economics, and elsewhere, have showed that wheat germ is a rich source of protein having high nutritional value approximating that of milk and meat. In a form suitable for human consumption, it offers a relatively low cost source of high quality protein potentially available in large quantities. Wheat germ is also an exceptionally valuable source of their essential nutrients. It is rich in all of the vitamins of the B complex: thiamine (Vitamin B_1), riboflavin, nicotinic acid, and pyridoxine (Vitamin B6). It is one of the best natural sources of vitamin E and makes a substantial contribution to the needs of the diet."

Wheat germ and wheat-germ oil are valuable sources of vitamin E. Wheat germ is the vital part, or source of new growth in each wheat kernel. It is such a fragile speck of vital life and health that someone has said that nature created the rest of the wheat kernel to protect the germ. It contains concentrated minerals: iron and phosphorus. It contains concentrated vitamins: Vitamins A, B complex, and the aforementioned E. One half-cup of wheat germ provides twenty-four grams of protein, or the equivalent of four eggs.

Raw wheat germ, not toasted, and without the addition of sugar, provides the best source. Since it is highly perishable, it may be obtained[14] packaged in vacuum-packed containers. Once it is opened, it should be kept tightly closed, refrigerated, and used as quickly as possible. It may be added to foods, by sprinkling over cereal or soup, fruit, yogurt, or salad. It may be added to Tiger's milk. It may be added to cooked foods, used instead of "breading," and added to baked products. It may be added at the rate of 1 1/2 teaspoons per cup of unbleached flour to fortify it.

Wheat-germ oil is expressed from the wheat berry. It contains the fat soluble vitamins, mainly E. It does not contain the protein nor the B vitamins of the wheat germ, and therefore should be considered as a supplement rather than a substitute to the wheat germ itself. Nonetheless, wheat-germ oil is a valuable aid. Thomas K. Cureton, Jr., Director of Physical Fitness Institute of the University of Illinois, found[15] wheat-germ oil beneficial in fighting fatigue, and promoting endurance. One teaspoonful a day raised the oxygen in the heart, the other muscles and the tissues 30 per cent or the equivalent of the effect of an oxygen tent.

In a test with older people, one group was given wheat-germ oil, and another group was given placebos, or dummy pills. Both groups were matched in age. They were put on a treadmill run, and then allowed to swim in cool water. The group who had taken the wheat-germ oil showed a definite advantage of greater endurance over the other group. As a result of these and other studies, Dr. Cureton believes that middle-aged men may reverse their age characteristics from ten to fifteen years by taking mild exercise combined with 1 1/2 teaspoons of wheat-germ oil daily.[16]

Wheat germ oil may be administered from the bottle, or it may be mixed with salad dressing. It should be stored in a dark bottle, tightly closed, refrigerated, and used as quickly as possible to prevent rancidity.

BREWER'S YEAST

The term "brewer's yeast" comes from former times, when this dry, debittered yeast was actually a by-product from the brewery industry. Today it is known as "nutritional yeast" or "primary yeast" because it is grown especially for human consumption. There is also "basamin yeast extract" which is derived from primary grown yeast, and may be used wherever nutritional yeast is recommended. All of these yeasts are *dried* yeasts. The yeast plant has been allowed to store up the B vitamins for its own food. When the yeast is dried, this food becomes available to us. This should not be confused with baker's yeast, which is *active*, and would succeed in stealing some of our vitamins if the live yeast plant were ingested.[17]

"[Brewer's] yeast is not only our cheapest source of B vitamins, it is also our cheapest complete protein," wrote James Rorty.[18] "It takes months to grow our best vegetable proteins such as soybeans, peanuts, and sunflower seeds; it takes years to grow beef and dairy cattle; but it only takes hours to grow yeast."

The listing[19] below shows why brewer's yeast gives you a great deal for your money. Note that it includes a great deal from the vitamin B complex family, sixteen amino acids found in protein, and eighteen minerals.

Vitamins
B-1 (Thiamin)
B-2 (Riboflavin)
N-6 (Pyridoxine)
Niacin
Choline
Inositol
Pantothenic Acid
Para-amino-benzoic acid (Paba)
Biotin
Folic acid

Amino Acids
lysine
tryptophane
histidine
phenylalanine
leucine
methionine
valine
glycine
alanine
aspartic acid

Minerals
phosphorus
potassium
magnesium
silicon
calcium
copper
manganese
zinc
aluminum
sodium

glutamic acid
proline
hydroxproline
tyrosine
cystine
arginine

iron
tin
boron
gold
silver
nickel
cobalt
iodine

The body needs at least fifty-five nutrients daily, according to biochemistry textbooks. It is apparent that brewer's yeast offers many of them, and more of them than any other single food, except perhaps liver.

The values of brewer's yeast are many. At Sloan-Kettering Institute for Cancer Research, it was discovered[20] that cancer of the liver was prevented in experimental rats by the addition of brewer's yeast to the diet. In another test,[21] brewer's yeast was used to treat 1,000 patients suffering from infectious hepatitis. The improvement that resulted was called "dramatic." Three of the patients had been treated unsuccessfully from periods of nine months to seven years by orthodox methods. The blood of these patients was restored to normal, and liver function improved. There were no relapses.

Bicknell and Prescott reported[22] that cases of senile dementia in mental hospitals and convalescent homes, showed "dramatic improvement" in twenty-four to forty-nine hours after large doses of B vitamin, brewer's yeast, and wheat germ were added to the diet.

Dr. Tom Spies used brewer's yeast as a main stand by in treating his patients. Dr. Lester Morrison uses it to supply B vitamins for the preventive or curative therapy in reconditioning his heart patients. Jerome Marks, M.D. recommends it to prevent constipation.[23] Adelle Davis suggests it as the perfect reducing food. At Elgin State Hospital, two groups of patients were tested[24] on various diets. When deprived of the B vitamins, regardless of age, activity slowed down, interest was dulled, skin became thin and wrinkled, signs of nervousness, indigestion, and poor circulation appeared. The deficiencies evidenced themselves more quickly among the older people than among the younger ones. When brewer's yeast was administered, the recovery was described as "dramatic."

Another study[25] involved ten healthy men, ranging from twenty-three years to forty. They were allowed to choose anything they wished to eat from a diet which was inadequate in the B vitamins. They had a choice of white bread, soda crackers, macaroni, butter, egg white, ice cream, puffed rice, and coffee. However, twice a week they were given a small amount of fish, meat, or poultry. All of the men were required to do hard work. At the end of the first week they showed the following symptoms: laziness, inefficiency, depression, fatigue, muscle and joint pains, poor appetite, irregular bowel habits, constipation, and irritability. When brewer's yeast was given to them, they began to feel better within forty-eight hours. From then on, their improvement was sudden and dramatic. In five days, despite their otherwise deficient diet, all complaints had disappeared.

WHO SHOULD TAKE BREWER'S YEAST?

Brewer's yeast is valuable for every member of the family—even including the pet dog or cat! It is especially recommended for those who are anemic or tire easily. It has been found very helpful for pregnant women, nursing mothers, and vegetarians. Weight-watchers have also found brewer's yeast helpful. It is low in calories and contains almost no fat. For this purpose, it is suggested that it is best to take it about fifteen minutes before each meal. However, brewer's yeast does not tend to make underweight persons thinner. On the contrary, it helps to build up tissue and improve assimilation. Thus it may add weight to an underweight person, since it is a normalizing agent. For those wishing to gain weight, it is suggested that brewer's yeast is best taken after each meal.

WAYS TO TAKE BREWER'S YEAST

You may have to acquire a taste for brewer's yeast. Experiment with various brands until you find one that is palatable. You will find that it is well worth the effort. Begin with a small amount at first, a half-teaspoonful to a full teaspoonful daily. This may be increased gradually. Dr. Spies advocated at least four ounces a day for his patients. This amounts to half a cup. There are many ways in which people use brewer's yeast. Some mix it in a glass of hot or cold water, vegetable juice such as tomato, or V8; others mix it with fruit juice, such as apricot, grapefruit, grape, apple, or orange. Children sometimes prefer it in milk, with a bit of molasses or fruit juice added. Others add it to Tiger's milk. It can be added to soups, gravies, stews, meat loaves, hashes, stuffings, Spanish rice, baked beans, etc., at the rate of one tablespoon for each three servings.

Experiments[26] conducted at the Brooklyn Navy Yard proved that brewer's yeast could be added to such dishes as pork goulash, curry of veal, meat loaf, and beef-and-kidney stew, in sufficient quantities to increase substantially the worker's daily intake of vitamins and minerals—without the workers being any the wiser! Brewer's yeast can also be mixed with peanut butter, included in Boston brown bread and other whole-grain baked products. It lends itself very favorably to dishes which have strong flavors themselves, or when extra spices or herbs can be employed which have strong aromas.

Occasionally, people encounter gas when they begin to take brewer's yeast, in the same way as when they first take yogurt. If you do suffer this mild and temporary discomfort, view it as a favorable symptom! It probably reveals that you have been deficient in the B complex vitamins. When food, rich in the B vitamins, is introduced into a depleted body tenanted by unfriendly intestinal flora, warfare results in temporary gas until the unfriendly flora have been conquered. This is an additional reason to begin the daily doses of brewer's yeast modestly, and increase them gradually.

CHOOSING THE RIGHT YEASTS

Brewer's yeast comes in several forms: powders, flakes, and tablets. The powder is more concentrated than the flakes. The powder is *far* more concentrated than the regular tablets. One heaping tablespoon of the powder is equal to ninety tablets![5] The powder is even preferable to higher potency tablets because it is a *food,* not a *supplement.* Some forms of yeast powders have been found more valuable than others.[27]

One variety, known as Torula yeast, produced a vitamin E *deficiency* in chickens, according to a report[28] of the U.S. Department of Health at Bethesda, Maryland. The deficiency can be avoided by adding alpha tocopherol Vitamin E, or regular dried brewer's yeast.

Brewer's yeast will keep for many months and requires no refrigeration. For this reason, it may be purchased in greater quantity[29] than some of the more perishable foods. It should be kept tightly covered because it is susceptible to weevils which thrive on its nutrients just as people can. It is best to store it away from the light.

LECITHIN

Lecithin (pronounced less-i-thin) is found in every cell or organ in the body. It is also necessary to every cell and organ. Theoretically, by eating it in sufficient amounts, you can help rebuild those cells or organs which need it. Once they are repaired, the lecithin helps to maintain their health. This may be promising. It may mean that a deficiency of lecithin in the diet may be one of the causes of aging. If it is, the use of lecithin may be helpful in retarding the aging process.

To date, there is a mounting accumulation of scientific studies which suggest some of the diverse benefits of lecithin. Here are some:

Lecithin has been found[30] to reduce the cholesterol level in the blood. It helps dissolve the plaques already laid down in the arteries.

It also was noted[31] as of value to eliminate the yellow or yellow-brown plaques on the skin or around the eyes caused by fatty deposits.

Lecithin helped lower blood pressure in some people.

It produced greater alertness in elderly people.[34]

It increased[33] the gamma globulin in the blood which helps fight infection. It has provided an increased immunity against pneumonia.

Lecithin benefited[34] certain skin disturbances. These included eczema, acne, and psoriasis.[35]

It filled out and softened aging skin where dryness, paper-thinness, and shriveling occurred. It prevented a drawn look during reducing.

Lecithin was found to[36] be a natural tranquilizer. It aided in nervous exhaustion.

It was found[37] to serve as a brain food. The study showed that lecithin did rebuild cells, including brain cells. The work proceeds slowly. It was six to eight weeks before results were noted. Also reported in the same study was the observation that the brain of an insane person had been found to contain only half as much lecithin as a normal brain.

Lecithin was suggested[37] as a sexual aid. Twenty-five years ago it was used in Germany as a restorative of sexual powers, for glandular exhaustion, as well as for nervous and mental disorders. Seminal fluid is rich in lecithin. Because of its loss from the body, its need for men may be especially great.

Lecithin was also used[38] in weight changes. It was found helpful in distributing weight, by shifting it from areas of the body where it is unwanted, to portions where it is needed.

Lecithin was found[39] to help in the assimilation of vitamins A and E.

It prevented as well as cured fatty liver.

It lengthened the lives of animals; produced glossier coats, and greater alertness.

Lecithin, with the additional help of Vitamin E, was found[40] useful in lowering the requirements of insulin in diabetics.

Originally, lecithin was extracted from egg yolk. Its name was derived from the Greek word, *likithos*, meaning egg yolk. The egg yolk is a rich source of lecithin, and also a rich source of cholesterol. However, the brother-sister team of lecithin-cholesterol combination makes it possible for the lecithin to emulsify the cholesterol. In order to understand this phenomenon, try the following simple experiment:

The next time you roast meat, allow the gravy or juice to cool. The fat will float to the top. Sprinkle some lecithin granules on top of the fat. The fat disappears—

not from the gravy, but from sight. The lecithin has emulsified it.

Today's practices of the refining and hydrogenating (hardening) of fats destroys the lecithin-cholesterol team. The lecithin is discarded, but the cholesterol remains. Without the lecithin's power to emulsify it, the cholesterol can accumulate in the arteries, and result in trouble. The solution is *not* to eliminate cholesterol, which occurs richly in such good foods as liver, kidneys, brains, and heart. The solution, rather, is to add lecithin to the diet to make certain that the cholesterol is dissolved.

Although egg yolks are an excellent source of lecithin, most lecithin is made from soy beans. It comes in granule form. It looks like, and tastes somewhat like wheat germ. It has a nut-like flavor. It may be sprinkled on cereals, fruits, yogurt, salads, or stirred into juices. Dr. Lester M. Morrison recommended[31] from two to four tablespoons daily. Soy lecithin granules are available through special sources (See Appendix Chapter 6, #11) and are also stocked in many drugstores. Remember that, unlike brewer's yeast which gives a noticeably quick pickup, lecithin requires time to rebuild cells and tissues. Therefore the results may not be noticeable for several weeks. Dr. Lester M. Morrison recommends using brewer's yeast and lecithin simultaneously.

LIVER

George Bernard Shaw, a vegetarian, took liver shots which he dubbed his "medicine." Liver has long been known to be a powerhouse of B vitamins, minerals, complete protein, vitamin A, glycogen, or fuel—all vital to the body. Primitive people have recognized the great value of liver.[41] Predatory animals also recognize the concentrated values in the organ meats, including the livers, as they plunder their prey.

Your liver accomplishes a staggering number of jobs for you. For this reason it needs all the help it can get. The liver is basic to the strong heartbeat, the wide-open channels of your blood vessels, the soundness of your digestion, the sharpness of your brain, the strength of your life.

Your kidneys would be unable to dispose of waste nitrogen if the liver didn't first turn it into urea for excretion. The liver acts as a storehouse for vitamins, it balances hormones, builds amino acids, and secretes bile to govern intestinal activity. The liver controls bleeding, combats dangerous clotting, fights viruses and bacterial poisons, releases energy from food, and performs an amazing variety of functions. It is able to regenerate itself over and over, and this is where nutrition helps.

Dr. Frederick Steigmann of Chicago treated more than 1,000 cases of serious liver disease over a period of fifteen years. In addition to other nutritional improvements, his patients were given crude liver extract. He cut immediate hospital deaths from 48 per cent to 15.6 per cent. In commenting on this study, Paul de Kruif[42] queried: "If the nutritional treatment of advanced cirrhosis is so powerfully curative, why not use it to guard the liver while its cells are still normal? If we give our liver the right nutriments to work with, its cells will help to guard themselves. The nutritional supplements, added to a good diet, can do much like those used in the treatment of a sick liver—but less intensive and expensive. It takes far less to prevent liver failure than to relieve it."

Eating liver provides anti-stress vitamins. It also supplies energy. B. H. Ershoff, M.D. tested[43] desiccated liver on three groups of rats. The first group was given an ordinary diet. The second group was given B complex vitamins in addition to the ordinary diet. The third group was given desiccated liver plus the ordinary diet. The third group outgrew the first group 15 per cent. In addition to growth tests, there were tests for fatigue. The rats were placed in drums of water. Group 1 swam 13.3 minutes before they gave up. Group 2 swam 3.4 minutes except for three rats which lasted for 63, 83, and 87 minutes respectively. The third group, however, which had received the desiccated liver, were still swimming vigorously and were pulled out of the water by a tired experimenter at the end of two hours when the test finished.

Desiccated liver should be stored in a tightly covered jar. Otherwise, it offers no storage problems. It may be obtained from special sources (See Appendix Chapter 6, #11). It is also stocked in many drugstores. One supplier lists it[44] as made from the "highest quality, fresh, animal livers from disease-free animals only. Dried at temperatures not affecting therapeutic properties. External fat and connective tissues removed. More concentrated than the usual liver powder. The producer assures us that it does not contain DDT, stilbestrol or antibiotics." The same supplier sells empty gelatin capsules which makes liver-taking somewhat simpler for those who do not relish liver.

Desiccated liver may be added to any drinks, including "Tiger's milk." It can also be added to soups, stews, meat loaves hamburgers, etc.

ROYAL JELLY—HELP OR HOAX?

Royal Jelly is a whitish, paste-like substance which is a glandular secretion produced by worker bees expressly for the purpose of feeding their queen bee. It causes the queen bee to grow nearly twice the size and weight of the other bees. It increases her egg-laying capacity. It also aids her to live five to eight years, compared with the worker bees who live only two to six months. Measured in terms of the human life span, the life of the queen bee is equivalent to 1,320 years!

As you know, there has been a great stir recently about the use of Royal Jelly for humans. Let's examine some of the report to learn just what has been established.

Some French people consider it an "elixir of youth." They take it orally as well as incorporated in their face creams. Is it efficacious for humans?

One study, reported in 1958 in Germany, found[45] that Royal Jelly included the B vitamins of thiamin, riboflavin, nicotinic acid, pyridoxine, pantothenic acid, folic acid, biotin, inositol, aroline, and traces of B-12. However, in this study, when Royal Jelly was given to rats, it did *not* prevent normal aging. It did *not* affect weight *or* health. It did succeed in reducing the fertility in female rats. However, in the male rats, it increased sexual activity, but did not increase male fertility.

In another German study,[46] the jelly was used successfully on forty-one cases. These included skin disturbances, including varicose ulcers.

A researcher, Schmidt, used himself as a guinea pig.

After taking Royal Jelly, Schmidt reported[47] regulation of body weight, bowel movements, increase of appetite, energy, mental and physical powers including sight, reduction of excess fat, and reduction of sleeplessness as well as nervous tension. All in all, he observed a noticeable improvement in general health, which he claimed continued a long time after the treatment was discontinued. Remember, however, that this was a study of a single case, and has no statistical validity.

The United States Department of Agriculture in Baton Rouge, Louisiana, discovered[48] that Royal Jelly contains an antibiotic one-fourth as active as penicillin. It has the ability to stop the growth of micro-organisms that produce skin as well as intestinal infections. This strengthens the possibility that Royal Jelly may have some merit in cosmetics. However, the researchers found that the antibiotic activity decreased with the age of Royal Jelly.

Some of the most recent information about Royal Jelly came from a British science journal.[49] The article reported that cancer investigators found proof that Royal Jelly can arrest the growth of tumors in laboratory animals. Three Canadian researchers found that the jelly completely inhibited the spread of cancerous cells in mice providing the jelly was injected into the animals at the same time that tumors were transplanted into the mice.

The report said, "This appears to be the first unequivocal demonstration of anti-tumor activity in Royal Jelly. The results have been confirmed repeatedly on nearly 1,000 mice during a two year period, and show a striking effect: either all the mice die quickly or all survive."

The unscrupulous attempts of exploiting Royal Jelly for commercial gain have led to some extravagant, unfounded claims. These were reported[50] in an article entitled "Five Swindles to Watch out For." The writer alleged: "One of the greatest hoaxes of modern times is 'Royal Jelly', the substance the Queen Bee feed on. Largely proteins and vitamin B complex, it has gone through two types of exploitation. First, unscrupulous firms put it out in pills and capsules and flooded the mails with claims that Royal Jelly would cure sexual impotence, postpone the menopause, prolong youth. It was sold as an effective treatment for Parkinson's disease, heart diseases, low blood pressure and disability of the motor nerves . . .

"The second exploitation of Royal Jelly came from some leading cosmetic firms which put 100 milligrams (about 20 cents' worth) in an ounce of cold cream and sold the jar for as much as $10. It was also put into lipsticks, eye creams, and fluid make-ups. Since the public has already been brainwashed with the picture of the Jelly as a sexual rejuvenator, the words 'Royal Jelly' were sufficient to sell the stuff widely."

It is doubtless true that some unscrupulous manufacturers are exploiting the Royal Jelly craze, and that gullible buyers of these wares are not getting the hoped-for results. But this hoopla should not dim our ears to the few reliable studies which seem to indicate that Royal Jelly may have some benefits for humans.

A book, *The Miracle of Royal Jelly,*[51] offers some explanations for the failure of the substance to live up to the claims:

—some of the ingredients in Royal Jelly are still not identified
—synthetic Royal Jelly has not produced the same success attributed to the natural product
—Royal Jelly must be fresh
—it must be removed directly from the hive without being subjected to any processing
—it must be consumed in its natural state, since it is a living product and extremely delicate
—if it is stored in a cool vault or refrigerator, it is possible to retain the qualities of Royal Jelly for months

There is one point of basic agreement. Royal Jelly is richly endowed with the B vitamins, and with pantothenic acid. This is the vitamin isolated by Dr. Roger Williams. Because of its extraordinary results on both test animals and people, it has been termed the "youth vitamin." But you need not rely on Royal Jelly to procure pantothenic acid This exists in liver and brewer's yeast, which may account for many scientific reports of health improvement and slowing down of the aging process in people who consistently eat these foods in proper amounts.

When pantothenic acid is absent in an otherwise adequate diet for animals, the following changes have been noted:[52]

—their hair turns gray

—anemia and eczema appear
—the animals appear old, even when they are young
—they develop stomach and duodenal ulcers; damaged heart muscles, liver, kidney, thyroid, and sex glands
—in two groups of black cocker spaniels, those not fed pantothenic acid appeared old, droopy, and without energy. Their hair was coarse and gray. When pantothenic acid was restored to the diet it restored somewhat their youthful appearance. But the spaniels who had never been deprived of this vitamin had sleek fur of beautiful color, and were full of pep, youth and vitality.

When pantothenic acid is added to the human diet, together with the complete B complex, the following have been observed:[53]

—it aids digestion, food assimilation, and constipation
—it has given relief in rheumatoid arthritis, sometimes in anemia
—it improves the memory and ability to think more clearly

In addition to liver and brewer's yeast, there are other sources rich in pantothenic acid. They include: rice polishings, wheat germ, kidneys, soy beans, peanuts, egg yolk and, to some extent, whole grains. It is removed from white flour by the refining process.

SUNFLOWER SEEDS

An approximate analysis,[52a] per 100 grams or about 1/4 pound of sunflower seeds will reveal why it is considered a concentrated food:

Minerals

iron	6.0 mgs.
phosphorus	860.0 mgs.
calcium	57.0 mgs.
iodine	0.07 mgs.
magnesium	347.0 mgs.
potassium	630.0 mgs.
manganese	25 parts per million
copper	20 parts per million

B Vitamins

B-1 (thiamin)	2.2	mgs.
B-2 (riboflavin)	0.28	mgs.
Niacin	5.6	mgs.
B-6 (pyridoxine)	1.1	mgs.
Para-amino-benzoic acid	62	mgs.
Biotin	0.067	mgs.
Choline	216.00	mgs.
Inositol	147.00	mgs.
Folic Acid	0.1	mgs.
Pantothenic Acid	2.2	mgs.
Pantothenol	3.5	mgs.

Other Vitamins

Vitamin D	92 U.S.P. units
Vitamin E	31 Int. Units

Protein	25%
Sunflower Oil	48.44% (over 90% unsaturated acids)
Ash	3.64%
Crude fiber	2.47%
Carbohydrate	15.18%
Moisture	5.27%

Sunflower seeds are delicious when they are eaten raw, out of hand. They may be purchased already hulled, and organically raised. (For sources, see Appendix Chapter 6,#9) In order to make certain that the sunflower seeds are fresh, they may be purchased vacuum-packed. Since the oil content is so high, sunflower seeds will turn rancid if they are not fresh. They may be used in a variety of ways. They are good between-meal snacks. They can be tossed in salad, sprinkled over soup, fruit or vegetables, added to yogurt. They may be ground up in "Tiger's milk" or in other drinks. They may be ground in an electric blender, or a tiny Speedmaster.[53] They are especially helpful to those who suffer from low blood sugar as a pickup snack, since they have a high protein content.

A FEW MORE WONDER FOODS

Rose hips, the fruit from the rose plant, are exceedingly high in vitamin C. Acerola cherries are also a powerful storehouse of vitamin C. Soy beans and products made from soy beans such as soy flakes, soy grits and soy flour, are rich in the only complete vegetable protein. Pumpkin seeds seem to offer special value. (See Chapter 23, section on prostate.) All of these natural materials may be obtained and incorporated in the diet. (See Appendix, Chapter 6, #11 for sources)

WHAT ABOUT MILK?

For many years, milk has been called "the perfect food." Is it? There is mounting evidence which questions this precept. Let's examine some of the findings.

"Milk, a highly overrated food, actually harmful to many," was the title of a recent article.[54] It summarized findings that there has been a lot of quackery which has escaped criticism because it is approved and accepted by important interests. According to the article, the chief organizations which misinform the public with regard to milk, and other foods, are a large number of commercial and governmental agencies that constantly advocate and propagate the idea of the necessity of providing large quantities of milk in the diet for young and old alike.

Many years ago, Dr. I. M. Rabinowitch, then director of the Metabolism Department of Montreal General Hospital, said[55] that the dairy industries would like us to flood our bodies with milk. Yet he pointed out that milk is *not* an indispensable part of the adult human's diet. Milk is given by the mammalian adult to its young, and this supply varies in different animal species from almost one month to one year after birth. None of the animals in nature is furnished with milk after weaning. Hence it is obvious that milk is not a natural food for an adult animal.

Milk has been shown to be an incomplete food even for young animals. After only a few months, calves must be given mineral supplements in their feeding in order to avoid anemia. Milk is not an adequate food for supplying the needs of the blood-building organs of the body. This was shown experimentally with rats.[55]

Dr. J. Sim Wallace, a medical and dental scientist, stated[56] that where the land flows with milk and sugar, there you have tooth decay rampant in the classes which eat these foods most, notwithstanding their vitamin content.

Dr. William Dock, specialist in coronary diseases, noted[55] that though young Japanese men have been accustomed to long hours of physical labor, they are relatively immune to atherosclerosis and coronary disease which is becoming increasingly more prevalent in the United States. Dr. Dock noted that the Japanese drink no milk. Dr. Dock expressed the belief that this was one of the reasons for their immunity to these two degenerative diseases.

Dr. H. M. Sinclair, an eminent British researcher in nutrition,[57] has contended that cow's milk is an inferior food. He noted the tendency to overfeed children with milk. Dr. Sinclair believes that excessive feeding of milk to children during the growth period is undesirable, and may lead to early maturity and untimely death due to chronic degenerative diseases. He also stated that the excessive rapid growth of children in the United States, where overfeeding is common, and milk is a big factor in this, may very likely hasten the development of such chronic degenerative diseases as heart disease, kidney disease, and even cancer.

Drs. Harold D. Lynch and W. D. Snively, Jr., on examining the dietary histories of many children, pointed out that many children fill themselves with milk to the exclusion of other foods with more protein value. The result frequently is malnourishment. These two pediatricians, at a meeting before the American Medical Association,[58] noted that beverages, including milk and juices, can be poured down a baby's throat fairly easily, whereas those foods high in protein, which must be eaten if a child is to grow healthily, are not sweet and must be chewed. They are thus robbed of good nutrition and hence build no resistance to tooth decay and infectious disease.

Amy L. Daniels and Gladys Everson, nutritionists at the State University of Iowa, noted[55] the poor appetite in pre-school children. They contended that the drinking of large amounts of milk by young children often causes symptoms of anemia, constipation, and vitamin deficiency.

Dr. Eugene Rosamond, in addressing a state pediatric and regional medical society meeting, announced[55] that a quart of milk per day for each child was excellent commercial propaganda, but poor medical advice. He also said that approximately 7 per cent of all sick children who go to the physician are ailing because their mothers are requiring them to drink more milk than they need. Dr. Rosamond further estimated that 10 per cent of the minor ills of children are due to the evils of too much milk. Dr. Rosamond listed the following typical symptoms of too much milk in the diet of children: pallor from anemia, constipation, irritability, refusal to eat, restless sleeping, bad dreams, bed-wetting, and in some cases even a morbid appetite for abnormal foods such as dirt.

A large group of Yale students[55] took the dairy industry's slogan to heart: that people never outgrow their need for milk, and should drink three glasses of milk every day. Some of the Yale students went on milk binges. This prompted the Director and Assistant Director of the University's Department of Public Health to warn that the normal healthy individual can readily cause kidney-stone formation by simply drinking too much milk, or eating too many milk products, such as ice cream, etc.

Dr. Mark Hegsted, of the Harvard School of Public Health, stated that there has been an overemphasis on calcium in nutrition and that this, tied closely to the urging of everyone to consume great quantities of milk, may have harmed the health of the adolescent and adult population. For thirty years or more dietitians and nutritionists persistently have urged increased, life-long milk consumption because of the alleged needs. Dr. Philip H. Henneman noted[55] that people who have kidney stones are often those who have consumed a quart of milk per day. He found further that these persons had no further development of kidney stones following the discontinuance of milk.

Michael Rabben, D.D.S. in an article entitled "Is Milk the Perfect Food?" warns[59] that milk contains hormones, the role of which is at present unknown. It is suspected that the presence of hormones may be a possible factor in growth, as well as cancer.[60] Milk is sometimes an allergy factor. Studies of[61] 140 children who suffered hives, constipation, sneezing, colic, vomiting, coughing, and loud, coarse breathing were relieved of these symptoms as soon as milk was eliminated from their diets.

Many informed pediatricians take their patients off milk but do not advertise the fact.[62] In speaking to the Maryland Academy of General Practice, Dr. Louis A. M. Krause denied the importance of milk. He pointed out that in Biblical lands children never drank milk after they were weaned. In our practice, children have been observed who have lost asthma, sinusitis, and allergies after milk was eliminated from the diet. It has been reported by other pediatricians that heavy milk drinkers may have anemia, rickets, excessive mucus, malnutrition, endocrine dysfunction,[63] excessive depositions of calcium, kidney disorders, and even rectal bleeding.[64] Dr. Blake F. Donaldson noted[65] that milk may be a factor in the production of poliomyelitis and sleeping sickness. Medical literature describes a "milk drinker's syndrome" in which depositions of calcium were found, especially in the joints.

Dr. Rabben[59] gives us this thought. People, in general, are not able to judge as to the amount of milk suitable to take: if some milk is good, then more milk must be better. Immoderation in this respect, however, produces an imbalance in the diet. Milk has a tendency to displace other foods. Variations in the nutritional requirements, and in the reactions of people to foods, make it difficult to predict the precise results to be expected from an intake of milk. With these words of caution, we are now ready to examine other aspects of the problem of milk.

RAW VS. PASTEURIZED MILK

Pasteurization destroys or at least greatly reduces the lipids (lecithin) which normalize the use of cholesterol, both of which occur naturally in raw milk. Also when butter is churned, the cholesterol remains in the butter while the lipids (lecithin) go into the buttermilk, reported Dr. N. Philip Norman.[66] He added, "Pasteurization and homogenization inhibit bacterial activity and decreases spoilage rates. Thus, dairy products may be kept under refrigeration for ten days or two weeks. . . ."

"A kissing cousin to pasteurization is homogenization.

This pseudoscientific salvaging process is another boon to the dairy industry. In this process milk is squirted, under terrific pressure, through fine calibre tubes against a wall. As a result, fat droplets are broken up—completely and permanently. . . .

"The dairy industry, in collaboration with the health authorities, has successfully imposed pasteurized milk upon most of this country. It now seeks to make homogenization of milk mandatory. Pressure is put on local grocers, chiefly in the form of trade deals. Tempted with the coaxing line that homogenized and pasteurized milk lasts longer and is returnable when stale, the grocers shy away from the distribution of raw milk. . . .

"If not sold, those stale products are salvaged by the industry and surreptitiously converted into other profitable items."

Although a quart of fresh unpasteurized milk contains a third of the adult requirements of vitamin C, pasteurization destroys it. It has been estimated[67] that pasteurization of milk every year robs us of as much ascorbic acid as is contained in the entire citrus crop in the United States!

Researchers[68] have discovered that pasteurization also destroys vitamins A and B, as well as some minerals including calcium.

Pasteurized milk, robbed of its natural ingredients, lowers its nutritional values. In a study[69] in England, children fed raw milk were more resistant to tuberculosis than children fed pasteurized milk. In another study,[70] infants fed pasteurized milk for six months developed scurvy, and a cure was brought about when raw milk was substituted.

An article in *Lancet* noted[71] that children's teeth are less likely to decay on diet supplemented with raw milk than with pasteurized milk.

Effects were noted[72] in growth and weight. Raw milk was found to be more effective in inducing weight and height increases with boys and girls, than was pasteurized milk.

Dr. F. M. Pottenger, Jr. who has studied the effects of raw milk on both experimental animals and people, reported[7] that raw milk produced better bones and teeth than pasteurized milk, and that it protected against or prevented dental problems, deafness, arthritis (due to the

Wulzen factor), rheumatic fever, and asthma. (Remember, in the Wulzen[4] study cited on page 171, the guinea pigs fed *raw* cream grew well and, upon autopsy, showed no abnormalities. On pasteurized cream, they developed arthritis.)

IS RAW MILK SAFE?

Many people are wary of drinking raw milk because of the fear that has been associated with undulant fever. However, as we learned earlier (See Chapter 3) undulant fever as well as Brucellosis are deficiency diseases, which can be prevented and cured by proper nutrition. In a comprehensive report,[73] it was stated that the belief is unfounded that undulant fever is contracted from raw milk.

Here are other findings:

"From the health standpoint, as in the case of tuberculin testing, insistence on Bang's testing of all herds producing milk, whether or not it is to be pasteurized, would solve the problem of bovine undulant fever. . . .

"Clean and safe milk is vital to health. . . . After extensive experiments it was discovered what those requirements should be, the four most essential factors being: 1. Sterilized utensils. 2. Clean cows with clean udders and teats. 3. The small topped milk pail (the newer milking machines have the pail completely covered). 4. Refrigeration at 50°F. after milking. Other important factors were found to be clean and healthy milk handlers and unpolluted water supply. Wherever these recommendations have been observed, the results have been excellent. In fact, these experiments were instrumental in learning that *any* farm and *any* farmer can, with proper incentive, produce clean milk.

"The same ideas underlay the original development of Certified milk under the Medical Milk Commissions, and numerous local examples of these principles of clean and safe milk production can be found all over the country, whether it be called Grade A, Certified, Inspected, Approved, or Guaranteed."

The only safe raw milk which nutritionists recommend is certified raw milk. This is produced under strict state and federal regulations, as well as being under the supervision of medical milk commissioners. It is available in some areas.[74] It is milk from cows fed on food from green pasture, from a rigidly inspected herd, and handled by persons who have passed equally rigid health tests. The vitamin A content is kept constant, under close surveillance. It is not lower in the winter, due to the careful supervision of a controlled diet of the cows. Certified raw milk also has a lower bacterial count than pasteurized milk. According to one of the producers, "Certified raw milk has been distributed with complete safety to thousands of families for over sixty years. It meets, and often exceeds the most rigid requirements of the American Association of Medical Milk Commissions."[75]

Unfortunately, in many states, certified raw milk is available by prescription only. This legal limitation works in favor of commercial interests which favor the long shelf life afforded by pasteurization and homogenization.

WHAT ABOUT DRY MILK POWDER?

Dry powdered nonfat milk has been favored by some nutritionists, as a second-best food to certified raw milk. It can be used in fortifying soups, baking, etc., as well as liquid drinks such as "Tiger's Milk," etc. Apparently, the different processes used in drying milk affect its value. In a study with rats tested on *freeze* drying, *spray* drying, and *roller* drying, more serious tooth decay resulted with milk which had been subjected to the greatest heat: roller drying. At the University of Cologne, rats fed roller-dried skim milk all died of liver necrosis. The rats fed spray-dried milk remained healthy. However, when vitamin E was administered as a supplement to the rats receiving the roller-dried milk, the dangerous effects were prevented. Remember, the less heat used in drying milk, the better. Spray drying seems preferable to roller drying..[75]

WHAT OTHER ALTERNATIVES?

Since there seems to be mounting evidence which questions a high intake of milk, and since Certified Raw Milk is so difficult for some people to obtain, and since there are a growing number of contaminants in milk (See Chapter 9), some people are turning to substitutes. Dr. Clive M. McCay noted:[76] "Some people are consuming bone meal instead of milk. This does give them calcium, other trace minerals and some deteriorated protein. Many . . . use soy milks. These soy milks are now very attractive to taste. They are also being sold in various modifications such as malted milk. With the growing interest in the consumption of unsaturated fatty acids which are rich in these soy milks, the future may see a real challenge to the dairy industry."

16. Are You a Mirror of What You Eat?

"Tell me what you eat, and I will tell you what you are," remarked the celebrated gourmet, A. Brillat-Savarin.

A veteran medical reporter, after attending an international conference on nutrition, wrote:[1] "The old saw 'we are what we eat' is now confirmed. It is clear that food is more than food; that the right food promotes and maintains health, and the wrong food often causes disease. Food must therefore be regarded as medicine, to be prescribed."

Our bodies contain certain elements which *must* be replaced constantly to promote repair and maintain health. Dr. Roger J .Williams wrote: "There are certain elementary laws about nutrition from which there is no escape." However, food selections may be adjusted to suit individual needs, since each body is a law until itself.

WHAT MAKES EACH OF US UNIQUE?

Each of us has an individual set of fingerprints, voice, face, etc.; Each of us also has an individual body which is unique. In an *Atlas of Human Anatomy*,[4] there are pictures of human hearts, stomachs, lungs, and sinuses of every size, shape, and description. *No two are exactly alike.* The processes of swallowing, the function of digestive juices, the amount and type of saliva, and the rate of digestion of food are as unpredictable as the road map of different intestines.

There was a man who, along with his family physician, was very anxious about the condition of his appendix for some thirty years. When surgery was performed for an emergency gall-bladder operation, both the physician and his patient were surprised by some discoveries. Despite the man's good health for a number of years, his gall bladder was located in an unorthodox area; his liver was only about two-thirds the size of a "normal" liver; he was minus one rib; and his appendix had dwindled to nothing at all. Yet this man functioned "normally."

Eye-glass prescriptions for one person will not suit another. Custom-tailored shoes for one person will not fit another. The same rule can be applied to every other aspect of human life. Dr. Williams remarked:[5] "We have lived too long with the idea that there must be a *best* way for a man to do everything. We have said either everyone should eat a heavy breakfast or else no one should. If eight hours sleep is right for one, it is right for all." We need to change our traditional thinking in terms of "normal" and "averages," and better understand the invidivual patterns. What is one man's meat may not be another man's poison, but it may not be what is best for him. Without becoming a hypochondriac, *study yourself*. You will make many surprising discoveries which may be used to good advantage. At the same time, you will acquire a tolerance for the next fellow's different individual pattern.

The entire world is now a melting pot. Every country harbors a mixture of races. Some are recently migrated, others several generations removed, and still others, indigenous. Each group has its own acquired eating pattern. Orientals traditionally eat little meat, mostly because of its scarcity. But they get their protein from fish and soy beans. Eskimos are largely meat eaters because plant life in their environment is scarce. Groups at the Equator, living in tropical lushness, eat largely plants and fruits.

Animal food-intake patterns also vary. The cat family is largely carnivore. The gorilla is a pure vegetarian. Meat-eating creatures are accustomed to eating one large meal following their kill, since they cannot store for future use. Creatures who find sustenance on plants, seeds, fruits, and nuts, find small quantities of food wherever they search. Consequently, they nibble all day long.

Indeed, size of portions, frequency of mealtimes, and contents themselves vary considerably for man and beast. Patterns are formed due to climate, habit, type of life and work, temperament, physical build, etc.

Your own heredity from your immediate family, your early childhood conditioning for or against foods, and your emotional pattern also play important roles in your selection of foods. Remember, you cannot use yourself as a yardstick to judge others. Nor can you judge yourself by others.

IS APPETITE OR TASTE A RELIABLE GUIDE?

Not necessarily. Dr. Williams discovered[3] that taste varied widely and was not always reliable. For example, test animals deficient in magnesium actually avoided food containing magnesium. In rehabilitating alcoholics through improved nutrition, Dr. William reported that hunger for sugar or alcohol is a perverted appetite.

D. T. Quigley, M.D. wrote:[4] "An appeal to nothing but taste is a wrong approach to one of the most vital problems of health. Normally we overeat on carbohydrate foods for they have no self-limiting action on the appetite."

Primitive people, disease-free on a natural diet, were observed to go hog-wild when sugar and refined foods were introduced to them. The people in Labrador and Newfoundland had centuries of tradition in eating brown bread. But in 1910, white bread was introduced to them. They devoured it, and ultimately developed beri-beri. Along came a ship which had to drop some cargo to lighten the load. Whole-wheat bread was unloaded. For a year, the population ate brown bread since nothing else was available. Their beri-beri disappeared. But when the next shipment of white bread arrived, the natives fell to it with a will. Their deficiency complaints returned.

A dentist in New Jersey offered a choice to experimental rats. They could choose water or a cola drink. The rats chose eight times as much of the cola drink as they did of the water. Yet such drinks are known to cause tooth decay.

Salt also seems to be a appetite perverter. Do you remember when you were a child, how little salt you ate? Do you remember wondering at adults who dumped so much salt on their food? Actually, the less salt you eat, the less you crave, providing that the food itself is well grown. (Poorly grown food may tast "flat" due to vitamin and mineral deficiencies.) According to farmers, a cow's craving for salt is only for taste. This has been acquired through the practice of farmers who encourage cows to use the salt lick. This in turn creates thirst. The cow drinks more water, and milk production rises. The unreliable quality of a cow's judgment regarding taste extends to her ingestion of nails, wires, and dangerous metal objects.

On the other hand, there seems to be some evidence in which a craving for a particular food indicates the need to satisfy a certain requirement. Franklin Bicknell, M.D. related[5] the story of a child who had been given free choice of foods until he went to school. Apparently he was healthy. After beginning school, he had to eat lunches which were prepared according to a book on how to feed young children. One day, he ate three raw carrots for breakfast at home, turned down the school lunch, and then later wandered into the kitchen at home. He helped himself to a piece of raw liver, two sardines, and some cheese rind.

It was reported[6] that twelve children who ate sand, soil, brick, stones, wood, coal, ashes, and clay were examined. They were found to have iron-deficiency anemia. When an iron compound, "Imferon," was given to them by injection, they lost their appetite for the unusual articles of food.

I strongly suspect that the "queer" appetites of pregnant women reflect a need for a particular requirement. A friend told me that during her pregnancy she awoke one night with a consuming desire for clams. She roused her husband, who patiently got dressed and began to search the city for a store which might be open in the middle of the night. He located an all-night fish market which stocked fresh clams. But the store refused to sell less than a bushel. The man took the bushel of clams to his wife, thinking that many would be wasted. His wife was overjoyed, and devoured some immediately. She refrigerated the remainder, and ate them for days in every conceivable manner. She succeeded in eating the entire bushel of clams with genuine satisfaction. She is still fond of clams, in spite of having consumed them in such prodigious amounts. Her craving possibly indicated a shortage of some food need which was present in the clams. Most mothers can relate similar stories.

So satisfy your food craving sensibly. Try to ascertain if it is really "wisdom of the body" or the result of a habit-forming food such as carbohydrates, sugar, salt, alcohol, coffee, or tobacco. Even in case of a body need, you can choose a wise rather than an unwise food. For example, some women seem to have a craving for sweets prior to the menstrual cycle. But it is during sugar binges that so many people not only put on weight, but imbalance the body chemistry. Such a craving can be satisfied with fresh fruit, or protein food such as natural cheese, or even fat in some acceptable form. (See Chapter 14) Adelle Davis wrote:[7] "Fats are more satisfying than are any other foods. If you forgo eating 100 calories of fat per meal, you usually become so hungry that you eat 500 calories of starch and/or sugar simply because you cannot resist them; unwanted pounds creep on."

MEAT-EATING VS. VEGETARIANISM

The battle between the meat eaters and the vegetarians has been raging for centuries. It is a topic which is sometimes approached with more heat than light. I shall attempt to present some evidence from both sides, unemotionally, and allow you to decide what is best for you. Whichever side you are on, don't sit in judgment on the other. Your way of eating may be inherent and necessary for you. It should not be subjected to criticism. It may be quite different for the next person's needs, physically, emotionally, and philosophically. These differences show up even within one family.

THE CASE FOR THE VEGETARIAN

A study on vegetarianism was conducted by[8] the School of Medicine, College of Medical Evangelists, in cooperation with the Department of Nutrition, Harvard School of Public Health. Three groups were tested:

1. Nonvegetarians (30% of their protein came from meat)
2. Lacto-ovo vegetarians (those who eat dairy products but no meat)
3. Complete vegetarians (those who ate natural, unrefined food which included whole grain cereals, legumes, nuts and nut butters, sunflower and sesame seeds, fresh, dried, and canned fruits)

In testing for cholesterol levels, the nonvegetarians had the highest levels (291); The Lacto-ovo vegetarian group had a medium level (256). The complete vegetarians had the lowest (206). This group, even on the highest fiber content, had no constipation or intestinal disturbances.

In India, where protein deficiencies of the poorer classes is an intensive problem, a search was made[9] for inexpensive, complete proteins. Most vegetables tested were rejected because they were "incomplete protein," i.e. they lacked some amino acids. Ultimately, the vegetable selected was Bengal gram, or chick-pea. It was found to be higher in protein than any other Indian vegetable. Then a group of malnourished people were chosen. One portion of them was fed, using chick-peas in the diet. The other portion of them was fed, using powdered skim milk in the diet. Recovery from diarrhea was faster for the chick-pea diet, but blood improvement was faster for the milk diet. After thirty days, the results of the two groups were about the same. All patients on the high vegetable diet showed remarkable clinical improvement. The conculsion was drawn that "it is evident that, with a proper selection, a high protein vegetable diet can be used for this purpose."

A simple method has been devised[10] for extracting protein from plants. Fresh green leaves are pulped, juiced, and coagulated into the consistency of cheese or yeast, with little taste or smell. Nutritional experiments with animals revealed that this protein was as adequate or a little better than fish meal.

Vegetarianism has led to a never-ending search for good protein substitutes for meat. Sometimes this exploration has contributed to new knowledges in the field of nutrition. A researcher, Voit, discovered that dogs did not thrive on gelatin as a sole source of protein. The dogs became thinner and thinner, and finally died of malnutrition. But another researcher, Kessels, gave the dogs gelatin, *plus* the amino acids not found in gelatin (tyrosine, cystine and tryptophane). This revealed that proteins must be "complete" proteins to sustain life adequately. The diet of the gelatin plus the missing amino acids was favorable for the dogs.

A few nuts are complete protein. The soybean, a legume, is the only complete protein vegetable. In all other cases, some of the amino acids are missing. Because of the nature of the soybean, it is being recognized more and more, by vegetarians and others, for its high nutritional value. Other complete proteins include brewer's yeast, cottonseed, and cereal germs such as wheat germ.

W. Henry Sebrell, Jr., M.D. pointed out[11] that the human body can manufacture all but eight of the eighteen amino acids in proteins. Therefore it is essential to obtain them in foods. Foods high in these amino acids are: cashew nuts, peanuts, coconuts, sesame and sunflower seeds, algae, and certain molds.

If you know the analysis of each incomplete protein, by combining two or more vegetables or nuts, the protein may be rounded out, or completed, provided that they are eaten at the same meal. Dr. Paul R. Cannon reported[12] that if incomplete proteins are not rounded out or completed by other foods ingested at the same time, the body does not build protein from them. If a mixture of incomplete proteins contains *all but one* of the necessary amino acids, and this missing substance is not supplied *until three* *hours* later, there is a definite interference with the formation of protein.[13] For this reason, it is imperative that vegetarians make certain that their regime provides for complete proteins, and an adequate supply to meet their requirements. Dr. Biskind warned[14] that inadequate protein interferes with the functioning of the B vitamins.

A study of the effects of low protein showed[15] that it produced a choline deficiency, lowered cholesterol level, and caused fatty livers.

Charles S. Davidson, M.D. of Harvard Medical School, considered wrinkling, or the withering process of old age, due to a protein deficiency.

Lack of protein has also been known to cause:[15a]

anemia (hemoglobin of the blood is 95% protein)
infection (antibodies needed to fight infection are made of protein)
poisoning by toxins and chemicals (the liver needs protein to detoxify such substances; cirrhosis of the liver may result)
kidney disturbance (this is new; protein was formerly considered harmful to kidneys)
overweight and swelling (protein regulates the amount of water in the tissues)
poor body repair (protein escapes through a cut, a burn or a wound and is necessary for repair)
fatigue (muscles are made of protein; they become flabby, leading to fatigue)
poor posture
poor skin and hair and nails (all largely made of protein)
constipation (resulting from flabby intestinal muscles)

Adequate protein:

promotes resistance to infection[16]
aids rheumatic fever and tuberculosis[17]
aids heart disease and geratrics[18]
aids obesity[19]
aids hypoglycemia (low blood sugar)[20]
aids ulcers, anemia, arthritis, epilepsy, hypertension[21]

Except for soybean as a complete vegetable protein, other vegetable protein is considered biologically inferior.[22]

The need for "complete" protein, and adequate protein may be achieved by vegetarians as well as nonvegetarians. An awareness of the importance of the role of protein should be understood by all.

Vegetarians will rejoice in the news that one very meat-minded country is questioning its own diet as being one-sided. Argentina is, of course, a country where people are large beef eaters by tradition. At the present time, the Argentinian Ministry of Health is conducting a nationwide campaign to persuade people to eat less meat and more vegetable produce.[23] Also, the recent marathon walks by Dr. Barbara Moore are a dramatic example, among many, of the physical endurance and glowing health which may be achieved by a vegetarian.

THE CASE FOR THE MEAT EATER

The late Dr. A. J. Carlson conducted vegetarian vs. meat-eating experiments[24] with rats. The animals on a wholly vegetarian diet grew slower, and were less able to produce or raise young rats than those on a meat diet.

Army dietitians, drawing their conclusions from experiments of meat diets for rats, doubled the daily allowance, so that each man had at least one pound of meat daily. Meat won the war, according to Dr. James S. McLester of Birmingham, Alabama.

Louis Berman, M.D. recorded[25] that in examining people who ate little meat, they made statements such as "I feel muddled and dazed," "A wave of confusion comes over me," "I have such confusion in my mind," etc;

"Cirrhosis of the liver is common among orthodox Hindus who are strict vegetarians."[26]

The Veterans' Administration Hospital in Boston reported[27] the case of a patient who had refused to consume any food of animal origin for eight years. He developed pernicious anemia. After being hospitalized, he responded to treatment of Vitamin B12 and a corrected diet.

A naturopath acquaintance of mine was on a vegetarian diet for ten years under the guidance of a well-known vegetarian mentor. Toward the end of this period, an amino-acid count of his blood and a red blood test were made, and found to be dangerously low. One kidney had atrophied and had to be removed. The naturopath immediately began to eat meat—especially the organ meats, in addition to his usual fare of vegetables and fruits, many of them raw. The amino-acid count and the hemoglobin count became normal. This was accompanied by a feeling of greater well-being.

A study in Los Angeles revealed that individuals aged 50 to 85 who ate meat 1½ times daily or more, including liver at least once every week, showed better physical fitness, higher health scores, fewer adverse medical findings, and surpassed others in density of bones, weight, condition of soft tissues, eyes, lack of anemia, and ability to resist fatigue. Among this older group, the meat eaters showed less nervousness, and better reflexes. A Washington University study showed that older people require more protein than younger people.

ARE YOU SURE THAT YOU EAT ENOUGH PROTEIN?

A woman announced to me proudly as she served a vegetable casserole for six people, "This is a high-protein recipe. It has two eggs in it." I was sorry to disillusion her, but I tactfully told her that one egg equals only six grams of protein. The National Research Council reported that men require seventy grams of protein daily, and women require sixty. Some nutritionists feel that one hundred is safer for a margin of safety, and one hundred and fifty grams may be necessary for the recovery from illness or from a prolonged protein deficiency.

Many people, as my friend who served the casserole, believe that they eat a high-protein diet. But when they sit down with pencil and paper, and actually total up the sum, they are surprised to learn that they are consuming only a small amount of protein. Look at the following table,[27a] and total your protein intake today. How close was it to 100 grams?

1 egg	6 grams
lean meat, fish or fowl (¼ lb. or average serving)	18-22 grams

(Excepting certain nuts, the following are the only complete non-meat proteins):

1	cup soybean flour	60 grams
1	cup cottonseed flour	60 grams
½	cup wheat germ	24 grams
½	cup cottage cheese	20 grams
2	slices cheese (American or Swiss)	10-12 grams
½	cup soybeans, cooked	20 grams
½	cup brewer's yeast (powdered)	50 grams

There are those who maintain that meat-eating Eskimos do not live long. But this belief has been denied by some who have spent years living among Eskimos. From an unpublished manuscript by Henry W. Griest and his trained-nurse wife, who together spent seventeen years with the Eskimos, comes this statement: "For untold centuries . . . The Eskimo of the far North had solely carnivorous diet. . . . He was healthy . . . with rosy cheeks with vigor and brawn. . . . He suffered from neither tuberculosis nor any venereal disease; and he had rheumatism, if at all, to a limited degree. Barring accidents, starvation during lean years, or epidemics of unknown character, he lived to a very great age with his teeth intact, but worn to the gums since he used his teeth as a third hand. . . . When starches and sugars were introduced by the whalers and traders he at once began the development of carious teeth, something he had never had previously."

Stefansson, in a discussion of "Eskimo Longevity in Northern Alaska,"[28] from which the above excerpts are taken, pointed out that since Eskimos do not count their years, it is impossible to learn the ages from the people themselves. But observers who have lived and worked with them for a number of years have learned to judge their ages by appearance, and the ages of their children and grandchildren. Cases of extreme longevity do exist. Stefansson added, in a personal letter to me,[29] that Eskimos who die young today are mixed-diet eaters, as are all Eskimos now. When they were predominantly meat eaters, 80 per cent of their calories came from fat, which characterized them not as high-protein eaters, but high consumers of fat. Perhaps it should also be pointed out that the meat which Eskimos ate was free from stilbestrol, antibiotics, tranquilizers, and tenderizers, etc.

REARRANGING YOUR MEAL PLANNING

Most Americans are captured by difficult eating patterns these days. They bolt their breakfasts hastily. The entire family may eat their lunches away from home. The evening meal is the only one which provides an opportunity for leisurely, adequate eating in the presence of all members of the family. For this reason, the evening meal may be the heavy one.

Our forefathers were accustomed to a heavy breakfast, "dinner" in the midde of the day, and "supper" at night. This arrangement seemed to work well with the pattern of life. The hearty breakfast satisfied the appetite created from hard physical exercise in the early-morning chores. The light "supper" and early retirement insured sound sleep. One nutritionist advised:[7] "The general rule is to eat breakfast like a king, lunch like a prince, and dinner like a pauper. Your meals, however, should be planned to give efficiency when you need it most."

Helen, a woman friend of mine, began to worry about her husband, Bill, who complained that his real working day actually stopped around 3 P.M. every afternoon. After that point he went through the motions of working in the office, but he felt too tired to accomplish anything worth while. In the evening, he had a drink or two, ate a large meal, slept poorly and awoke tired. To make matters worse, he began to develop a "bay window" and looked pasty white. His nerves were on edge. A company medical checkup failed to reveal any physical disturbance.

His wife, after she had studied the situation in earnest, decided to rearrange her meal-planning for the entire family. She believed that there were nutritional shortcomings which could be improved through shifting of emphasis with different meals.

First came breakfast. She read that Dr. Thorn and his co-workers at Harvard University learned[30] that meat, milk, and cottage cheese produced more lasting energy than the usual breakfast of fruit juice, bacon, dry packaged cereal or toast, jelly, coffee with milk and sugar. She also read that researchers at Iowa State University found that breakfast skippers robbed themselves of alertness and efficiency.

Helen gave her husband liver, or chops, or kidneys baked with herbs in foil for breakfast. It seemed "different" and "unconventional," but her husband went along with her experiment. Sometimes she prepared "Tiger's milk" (description follows soon). She succeeded in raising the protein intake of the other meals, cut down on starches and sweets, and stepped up the whole-grain cereals, fresh fruits, and vegetables. She added vitamin and mineral supplements and cod-liver oil.

Two months later I saw Helen and Bill at a party. Frankly, I did not recognize Bill immediately. He was neither paunchy nor pale. He no longer had the appearance of the tired businessman. He was slimmer, erect, and seemed to radiate energy. He told me he felt wonderful and slept soundly. His raw nerves had disappeared.

Some nutritionists claim that heavy eating at the evening meal can cause overweight, as well as insomnia. If this is a problem in your household, you may wish to try shifting the hearty meal to breakfast time, as Helen did. Of course the evening meal is the time when it is most likely for the family to gather together at the table. But you can gather together just as readily over a bowl of soup, a salad, some homemade bread, cheese and fruit, instead of the usual heavy meal. It would also be less work for mother. Meat and chops can be used for breakfast, with chicken and roasts reserved for week-ends. It sounds slightly crazy, I admit, because the "Joneses" aren't doing it. It takes courage to be a nonconformist, but the results may make it worth while to give it a trial for a month or two.

For those individuals who claim that they never have any appetite for breakfast, Adelle Davis suggests that they eat a small evening meal. This may help. Dr. Robert S. Goodhart observed:[31] "Persons who have lost the habit of eating breakfast generally experience no hunger in the mornings and frequently assert that they cannot eat breakfast."

Another suggested rearrangement, especially for a family with various departure times, is to serve breakfast on the installment plan. If meat is too radical a change at first, begin by serving a whole-grain cracked cereal such as wheat, rye, or oatmeal (cooked the night before, if you wish to save time), plus an egg omelet. The monotony of the same old pattern of the American breakfast of fruit juice-bacon-eggs-toast-and-coffee is a needless bore. No wonder appetites are jaded. Cottage cheese and fruit, or a hamburger, or a whole-wheat toasted-cheese sandwich topped with bacon or ham, is certain to create interest.

WHAT IS "TIGER'S MILK"?

For those of you who still insist that you can't eat breakfast there is still another possibility. If you can't *eat* it, you can *drink* it! "Tiger's milk" is a boon. It is similar to a milk shake, and is an easy means of getting many of the things you need *in one glass,* pleasantly. It is "nutritional insurance" introduced by Adelle Davis, to make certain that you get practically everything you need, almost regardless of what you eat afterward. The title was suggested by a small boy, because the drink provides Tarzan-like energy. The drink has received widespread publicity. A news item in the *Ithaca Journal* under the title, "Tiger's Milk" Fountain of Youth Discovered by Club, announced, "The Senior Citizens Club uses this recipe to relieve aches and pains. Chock full of vitamins, it can also be used as a pick-me-up. Tiger's Milk Cocktail: one quart regular milk and ½ cup dried milk; ½ cup brewer's yeast, a small can of frozen orange juice (unsweetened). Keep refrigerated and use instead of aspirin. The club is sponsored by Mrs. Jeanette McCay, nutritionist and wife of Dr. Clive McCay, Cornell School of Nutrition."

The drink has achieved such favorable response that it may be on its way to becoming a national drink.

It has been my experience that any individual recipe for Tiger's milk immediately produces controversy among those addicted to it. Each one feels that his own version is best. In fact, in my own family, no two members agree on what makes the perfect Tiger's milk drink. However, we all do agree that the drink gives us energy in minutes, and lasts for hours. We all drink it for breakfast, and find that it carries us through long hours of hard work and stress.

Some of us start with orange juice (unsweetened) as a base, and others start with milk. Some add a raw egg yolk. Others use neither orange juice nor milk as a base, but start with other fruit juices, such as pineapple, apricot, or apple juice.

These are some possibilities. They all get blended in a matter of seconds in an electric food blender, or in an old-fashioned cocktail shaker.

Liquids
- milk
- orange juice
- apple juice plus a little apple cider vinegar
- vegetable oil (1-2 T.)
- tomato juice

Flavorings
- fruit pulp
  - apricot, pineapple, frozen orange juice, undiluted
- blackstrap molasses
- whole lemon—seeds, skin and all, liquefied, plus honey

Solids
- brewer's yeast
- powdered skim milk or powdered bone meal
- lecithin granules
- desiccated liver
- raw egg yolk (not white)

A commercial product called "Tiger's Milk" has been marketed which contains some of the ingredients, mixed together in powdered form.

KEEP YOUR MEALS SIMPLE

The days of elaborate eating, with many courses, seem to be over. Gene Cavallero of the Colony Restaurant in New York City says his wealthiest customers eat the simplest foods. In fact, since so many people seem to be on restricted diets these days, the wise hostess will not plan to serve rich food, or foods in great quantities. A meat entrée or casserole, a salad, a side vegetable, plus fresh fruit or cheese, and beverage is suitable fare for entertaining at home, eating in a restaurant, or at a party. The addition of vitamin and mineral supplements can keep us well nourished at the same time that we eat less food. The highly nutritious foods such as brewer's yeast, rice polishings, wheat germ, yogurt, sunflower seeds, etc., can offer us a good boost without causing weight gains.

FOOD FOR SENIOR CITIZENS

Those who live on tea and toast are aging themselves faster than is necessary. Since body processes slow down slightly with age, if less food is desired, it should be *more*, not *less* nutritious. If raw vegetables cannot be chewed, the juice can be extracted in a juicer. Or a delicious vegetable nog can be made in an electric food blender. Start with a base of tomato juice, and add any combination of raw vegetables such as cucumber, green pepper, water cress, onion, etc. A little dash of lemon juice, herbs, vegetable seasoning salt, Worcestershire sauce or horseradish, give the blender a twirl, and lo! *drink* your salad!

Meat can be cubed, chopped, or ground. Pureed "baby food" meat is acceptable. But remember that some chewing is necessary for teeth or gum health, so don't rely on liquids exclusively. Eat smaller meals, with nutritious snacks between meals. This helps digestion, and may make you feel better. If you seem to lack appetite, try starting your meal with a thin, hot soup. The soup itself may be prepared in the blender from fresh vegetables plus a liquid base. Turn the blended contents into a pot, and bring the soup only to slow simmer. This method will retain some of the food values which are usually lost in long cooking.

WHAT ABOUT THE SEVEN BASIC FOODS?

A change has occurred. The older concept of seven basic foods has given way to four basic groups. The United States Department of Agriculture Yearbook of 1959 on *Food* lists them as follows:

1 Milk—and all kinds of cheese.
2 Meat, fish, poultry, and eggs.
3 Vegetables and fruits
4 Breads and cereals, with potatoes as an alternative.

It is suggested that you choose foods from each group daily.

WILL AN OCCASIONAL BINGE HURT YOU?

An occasional binge will not hurt, as long as you don't allow the exception to become the rule. It is what you eat *regularly* that counts most. An occasional eating of a "reward" food or meal will not do too much harm unless you are allergic to a particular food, or if you suffer from low blood sugar. The probability is that the long-awaited piece of cake or pie will not taste nearly as good as you expected!

FOOD HABITS ARE STRONG HABITS

When you try to implement changes in your family's food habits, introduce a new food slowly. Put just a few alfalfa sprouts in a large tossed salad. Gradually, increase the proportion. Finally, you may be able to serve a salad made largely of the sprouts.

Introduce the new foods quietly, without fanfare. Otherwise you may arouse permanent antagonism to further change. Avoid preaching, or an attitude of holier-than-thou. As members of your family begin to show signs of improved nutrition, rejoice inwardly but avoid the temptation to voice, "I told you so."

N. Philip Norman, M.D. wrote:[32] "During thirty-six years as a clinical nutritionist, I have isolated two classes of people who will cooperate wholeheartedly in carrying out a specific, precise meal planning scheme. The first class consists of people who have been very ill and who, as a last resort, are willing to do anything that promises some hope. The second class is very rare—it is composed of intellectual and conscientious people who are convinced that their present and future health (and their children's) depends on following such a scheme." Number yourselves amongst the latter ones.

Dr. Clive McCay noted: "It takes hard study, great watchfulness and self discipline for the housewife to provide her family with the best foods. 'Best' means nutritive value and may mean taste. It does not mean 'best' in the empty sense of the customary blatant advertising."

KEEP MEALTIMES PLEASANT

Fritz Kahn, M.D. wrote:[33] "Ideas have a greater influence on the character of the gastric juice than the food itself. A disturbing thought suffices to interrupt the digestive machinery within us. For the stomach to receive food freely, to cover it with gastric juice by means of vigorous movements, a meal must be eaten without any disturbance and with good spirits. The table must be appropriately set, the food appetizingly prepared and served, and the conversation interesting but not too serious. All unpleasant news should be avoided during a meal. Don't read a newspaper while having your soup, and don't think of matters to which you must attend in the afternoon while chewing your meat. The hour of eating should be an hour of forgetting, devoted entirely to the enjoyment of food. This is the best medicine for the maintenance of youth and health."

WHAT ABOUT SHORT CUTS?

Every homemaker has a full schedule. Every homemaker feels that she could use more time, and looks for short cuts wherever she can find them. For this reason prepared foods in the supermarkets and groceries offer such a temptation to many women. There are the TV frozen dinners, or brown'n serve breads and rolls, cake and cooky mixes, pre-fixed salads, etc. Undeniably, time-savers are tempting. But for most of these prepared foods you pay a high price—not only in money, but in nutritional value. Foods which are mass-produced, mass-cooked, mass-frozen, transported from afar, and destined for a long shelf life, usually have been very much processed and/or refined. They are definitely not the "plain foods with nothing added and nothing taken away." Your decision must be, then, between saving time or saving health?

I like time-savers as much as anyone. I have found that by planning and organizing my kitchen work, I can use certain short cuts which do *not* shortchange my family's health. I make enough bread in one batch for our immediate needs, plus extra loaves which are stored in the freezer for the weeks when my schedule is too crowded with other activities. I make yogurt, which takes only five minutes to make twelve containers. I sprout grains and seeds, which requires so little effort that I could hardly time it on a stop watch! (See Chapter 18)

Eating is kept unbelievably simple in our house. A quickly broiled meat, fish, or fowl (without sauces, gravies, or stuffings) requires no fuss. A large mixed salad of raw vegetables can be prepared quickly. As many vegetables as we wish to eat raw go into daily salads, and this eliminates the need to cook many vegetables. We often use the French tossed salad.[34] A homemade salad dressing can also be prepared quickly in an electric food blender, in quantity, and stored in the refrigerator. This insures good oil and other ingredients being used. I can make several batches of different salad dressings within minutes, every week or two. This gives us a lively variety of dressings, with little effort. Dessert is equally simple. It consists of fresh fruit or cheese. I do not bake cakes, pies, or cookies. I do not waste time on fancy desserts. The time saved on dessert preparations is utilized instead in making bread. I find that one weekly bread-baking requires no more time than the average cake, pie, or cooky making. From my point of view, this is time well spent.

By not sacrificing health for time, I find that I have more energy, and can actually accomplish more. I find that it is no longer a question, "should I use short cuts?" but rather "which short cuts?" I know that I can control the ingredients used in my own cooking. My kitchen activities are guided by two principles. The first is "Keep it simple but nutritious." The second is from the advice of Dr. McCollum, of Johns Hopkins: "Eat only food that rots, spoils, or decays, but eat it before it does."

17. The Great Debate

A widely publicized campaign[1] has been launched, claiming that the following statements are untrue:

1 Most disease is due to improper diet.
2 Soil depletion causes malnutrition.
3 Chemical fertilizers poison the land and the food grown on it.
4 There is wonder power in wonder foods.
5 Certain types of cooking utensils are harmful to foods.
6 Processing and cooking removes nutritional value in food.
7 Sub-clinical deficiencies are a constant danger.

To readers of this book, it must appear obvious that there are many nutrition-minded physicians and researchers whose experience and observation substantiate these statements. I should like to report in detail on each point so that you may be better equipped to support the arguments if you should encounter attack on such statements.

1. "MOST DISEASE IS DUE TO IMPROPER DIET"

In support, Dr. Tom Douglas Spies, in addressing the 1957 Annual Meeting of the American Medical Association, reported: "All diseases are caused by chemicals, and all diseases can be cured by chemicals. All the chemicals used by the body—except for the oxygen which we breathe and the water which we drink—are taken in through food. If we only knew enough, all diseases could be prevented, and could be cured, through proper nutrition. . . . "As tissues become damaged because they lack the chemicals of good nutrition, they tend to become old. They lack what I call 'tissue integrity.' There are people of 40 whose brains and arteries are senile. If we can help the tissues repair themselves by correcting nutritional deficiencies, we can make old age wait."

Dr. Spies also reported:[1a] "Persons who are afflicted with rheumatism or cancer, for example, are not the victims of germs, but of altered chemistry. Our working hypothesis has been that all disease is chemical (meaning biochemical or nutritional) and that when we know enough, chemically correctible."

Melvin E. Page, D.D.S. agreed:[2] "If the glands are working properly, the body chemistry is efficient. If they are not working properly, then the body is inefficient and ill health results. . . . The chemistry could be made better or worse by the diet. The inward chemistry of an individual could be so changed that an individual with poor inheritance could achieve as efficient a body chemistry as that with which a few fortunate people are born . . .

"Bacteria are not the cause of degenerative diseases. If the cause of degenerative disease is inefficient body chemistry, then the patient himself must be treated, not the disease symptom.

"To do this requires a change of thinking on the part of the patient as well as the doctor, for it is the patient who must do nearly all the work; the doctor is sort of director. The patient . . . must understand that the body should have all the things that it needs for growth, and for the maintenance of health, and that the materials for this purpose are obtained chiefly through the diet.

"The diet is the most important factor for the regeneration of a person's chemistry. He must not only know what to eat, but most important of all, he must learn what must be omitted from his diet."

Morton S. Biskind, M.D. reported:[3] "There is a misconception that the average American diet is adequate. Evidence to the contrary is so overwhelming that it is surprising that this belief continues to be so widespread." He listed the following causes of nutritional deficiency which lead to disease:

—progressive soil depletion including failure to rotate crops and let land rest.
—use of toxic insecticides.

—picking and shipping fruit and vegetables while unripe; food has not attained its full nutritional essentials.
—use of vitamin-free sugar as a substitution of one-fourth to one-sixth of the average diet.

The classic studies of Drs. Price and McCarrison, quoted earlier in this book, also revealed that disease was linked to improper nutrition.

2. "SOIL DEPLETION CAUSES MALNUTRITON"

In opposition to this point Dr. L. A. Maynard, Ph.D. of Cornell University contends that the nutritional content of the plant is determined more by genetic and climate factors than by soil. As an example, he cites a ten-year study conducted at the Michigan Experiment Station on a hundred-year-old neglected farm in a low state of fertility. The farm was divided into sections, some of which were fertilized with major and minor elements. Other sections remained untreated. Food grown on both sections of soil were tested, then fed to dairy cows, and the nutritive value of the milk was studied.

"The records of the animals fed rations from fertilized fields," reported Dr. Maynard, "showed no superiority in yield, breeding efficiency, or health. No differences were noted in the milk of the two groups in protein, fat, amino acid, or B-vitamin composition. Milk from cows fed fertilized crops showed a higher vitamin A value, which probably can be explained on the basis of the effect of fertilization on the leafiness of the hay. No differences in nutritive efficiency were found in a biological test with rats. This extensive experiment bears out the general conclusion previously made that fertilization primarily affects the yield rather than the nutritive quality."[4]

On the other hand, there is considerable evidence which seems to reveal that soil depletion *is* linked with malnutrition. For instance:

Dr. E. C. Auchter, formerly a Chief of Plant Industry, United States Department of Agriculture, wrote:[5] "When the plants are consumed by man or animals the nutrients included become part of their bodies. . . . The minerals and other substances absorbed by the plant from the soil, water, or atmosphere are combined with the carbohydrates or other materials formed from them and help to make up such compounds as proteins, fats, vitamins, and other growth and regulatory factors.

"These combinations of foods, both simple and complex, found in plants, are the chief source of energy and are essential for the health of man and animals. The importance, therefore, of producing plants of the highest nutritional quality can be easily appreciated. . . .

"[It is true] . . . food products are better distributed today than ever before and more variety is available from a much larger area, thus lessening but not eliminating the possibilities of certain deficiencies.

"This fact takes on considerable significance when we realize that large segments of the population in certain areas of this and other countries obtain practically all their food directly from the plants produced in their own local communities. . . . Accordingly, in such groups the diet is limited. Even in cities, certain low income groups have a restricted diet. Such dietary deficiencies no doubt result from too low an intake of certain classes of foods, such as milk, green vegetables, fish and lean meats. If such food is also deficient in certain essential elements, the probability of physiological disturbances and reduced vitality is increased.

"In the past, serious bone, skin, digestive, and nervous disorders, among other maladies, occurred in certain localities. *It is now known that many of these troubles resulted from restricted diets or from eating plant and animal products produced on soils either deficient in certain elements, or containing elements injurious to health."* (emphasis mine)

More support comes from Louise F. Gray, Biochemist, who wrote[6] in the 1959 United States Department of Agriculture Yearbook on *Food* a chapter entitled "Factors That Affect The Nutritients in Plants." These are a few excerpts: "One of the most important of the many variables in the soil is the supply of available mineral nutrients the plants need for growth. . . . The influence of soil and climate on the nutritive value of foods for man and animals—the soil-plant-animal relationship—has been recognized for some time. The Department of Agriculture established the U.S. Plant, Soil and Nutrition Laboratory at Ithaca, New York, to study the many facets of this relationship. . . .

"Some places in this country are deficient in minerals. The mineral content of the soil there is reflected in a low mineral level in the plants. Thus copper-deficiency areas exist in the Southeast, notably Florida, and cattle pastured there must receive additional copper. . . .

" . . . Such observations as these emphasize the importance of understanding that too much of a mineral nutrient can be as detrimental to optimum performance as too little. Such excesses, however, are not likely to occur in human diets. . . .

"Two studies that demonstrate a positive effect of fertilization on the protein content of corn are noteworthy. . . . the fertilization and crop-rotation program increased the protein content of both varieties of corn. . . .

. . . "results showed that the biological value of the corn protein decreased as the protein content increased. . . .

. . . "The protein content of corn has been increased by both fertilization and breeding experiments. . . ."

A book, *Race, Sex and Environment*,[7] is a study of mineral deficiency in human evolution. It shows that even today there are regions where such troubles as goiter, skin diseases, weak and deformed leg bones, mottled and furrowed teeth, and nervous disorders are all too common.

This important study supports the idea that soil depletion causes malnutrition. Ira Allison, M.D. of Springfield, Missouri, became convinced that many diseases are due to malnutrition, and that much of the food was deficient because it was grown on impoverished soil. Dr. Allison learned of the work of F. M. Pottenger, Jr., M.D. who was obtaining excellent results with human tubercular patients by supplying them with trace elements. Dr. Allison applied this knowledge to animals. Brucellosis, or "Bang's Disease," in cattle had resisted all attempts at prevention and cure. The same disease in man is undulant fever.

Dr. Allison organized a scientifically controlled study[8] to determine whether a lack of trace elements in the soil might be the cause of brucellosis and undulant fever. The International Harvester Company co-operated in the study by making available a spectograph. This machine measures trace elements in the soil. The Armour Research Foundation Laboratory also co-operated. It agreed to test samples of soil, blood, and milk. The blood and milk samples of brucellosis-sick cows revealed a deficiency of trace elements. Soil samples taken from the land on which the cows had grazed revealed the same trace-element deficiencies. Samples of blood and milk from healthy cows raised elsewhere did not reveal deficiencies.

Dr. Allison's next step was to learn whether if the missing trace elements were supplied to the cows, the brucellosis would clear up. Results were highly gratifying. The sick animals, supplied with the trace elements, began to respond. Within a few months, their blood tests revealed a negative check for Bang's disease. They had been cured. On the farms where Dr. Allison supplied the missing trace minerals, vaccinations are no longer given for brucellosis. They are not needed.

Then Dr. Allison turned to the problem of undulant fever in humans. He worked with seventy-five patients suffering from undulant fever. He administered trace elements, after all other treatments had failed. Within five months, the blood tests of these people became negative in undulant fever testings. Knowing that seventy-five is too small a number to be statistically significant, Dr. Allison enlarged the group in further studies. Before his studies were concluded, he had treated 1800 people, between the ages of twelve and eighty, all successfully.

William A. Albrecht, Ph.D., Professor Emeritus, Department of Soils, College of Agriculture, University of Missouri, found[9] soil depletion linked to animal nutrition and, ultimately, to human nutrition. Dr. Albrecht observed animals eating the same species of grass on different types of soil. On fertile soil, they ate less to supply their health needs. On infertile soil, the animals were *forced to eat ten to twenty times the amount of nourishment.*

Dramatic evidence comes from Dr. Albrecht's department which published three maps.

—The first showed graphically the medical rejectees for World War II in relation to the soils on which they lived. The number of rejectees was highest in areas where the soil was the poorest.

—A second map showed the correlation between impoverished soil and tooth decay. This was based on the record of nearly 70,000 inductees into the Navy during World War II.

—A third map showed the interrelationship of mental ability and soil. Dr. Albrecht said: "Mental ability and better mental health, dependent as they are on good physical health, are therefore also related to the soil fertility. This relation is shown by the distribution of honor students in the College of Agriculture, as tabulated for a period of eight academic years."

These studies revealed, according to Dr. Albrecht, that although America appears to be bountifully fed in *quantity*, the *quality* of food can be inferior as a result of the soil on which it is raised. Perhaps it explains why so many Americans overeat. They overeat, but remain undernourished. They also gain weight.

Dr. Albrecht's work has been substantiated and extended by Dr. André Voisin, in France. Dr. Voisin, like Dr. Albrecht, has been a keen observer of animal grazing habits. He is a member of the Academy of Agriculture, and Head of the National School for Veterinarians at Alfort, Paris. He stressed[10] that the health of animals and men is linked to the mineral balance of the soil. The quality of the food affects both animal and human life which it sustains.

Dr. Voisin warns that the appearance of foodstuffs is no indication of the true quality. He gives many examples of deficiencies in the soil which are linked with plant and animal and human health.

A recent study reported[11] the difference in composition of turnip greens raised in two different localities. "Turnip greens from Blairsville, Georgia, possess Vitamin B12 activity, absent in the same crop in Experiment, Georgia. . . . It indicates that soil fertility does affect the nutritive value of plants, in spite of the widespread publicity to the contrary. . . . Furthermore, the vitamin B12 content of the livers of chicks on the Blairsville diet was twice as high as that when the turnip greens from Experiment were fed."

A study at Beltsville, Maryland, revealed[12] that even the *same* kind of plant grown on the *same* soil varies. For example, the carotene content, which is converted into Vitamin A in the body, in different roots of sweet potato plants varied as much as 47 per cent for Orange Little

Stem and 82 per cent for Yellow Jersey. The roots with the high yield produced more carotene than the roots producing a lower yield. The sweet potato which grew more slowly contained more carotene than those which grew more rapidly. If the soil lacks the trace mineral, cobalt, plants cannot manufacture vitamin B12.[9]

Dr. Firman E. Bear, Department of Agricultural Chemistry, Rutgers University, conducted[13] another dramatic study. By using an X-ray-type machine which detects and measures the precise chemical composition of a vegetable, he analyzed 204 samples of vegetables harvested at the same stage of growth, but grown in various parts of the United States. The study revealed that two carrots could look exactly alike to the naked eye, but under the analysis of the machine the mineral content of one might be very high, whereas another was practically nil. Different soils accounted for differences of compositions. *Depleted soil yielded depleted vegetables, even though the species planted were identical.* It should also be remembered that chemical composition does not reveal other factors, such as biological quality.

A startling example of soil fertility and animal health was demonstrated in the decline and rebuilding of one of the best thoroughbred racing and breeding stables in the country. For decades this particular establishment had been most consistently successful in the bloodline of its stallions and brood mares, and had produced racing horses of unusual stamina and speed. Almost every horse from this establishment received its start on a large farm in the heart of the Bluegrass country in Kentucky. By 1933 the racing and breeding results began to decline. Fewer horses won races, fewer mares came into foal, and mares began to drop stillborn or deformed colts. By 1941, the decline was extremely low. Various racing experts declared that the bloodlines of the stallions and mares had "run out." Gradually, the owner suspected that the problem might be connected with the long use of the fields as horse pasturage, with constant cropping. The soil was examined, and was found depleted. A major program of rebuilding the soil was undertaken. Cattle were introduced, manure was used, green crops were grown and plowed under. Within two years, the animals showed marked improvement. By 1946 the stable was the third highest winner of races in the entire country. Breeding results were restored to their earlier excellent standard of mare fertility and sound colts.[14]

3. "CHEMICAL FERTILIZERS POISON THE LAND AND THE FOOD GROWN ON IT"

This statement is worded incorrectly, but this is the manner in which the charge is made. To my knowledge, critics of chemical mineral fertilizers do not charge that they "poison" the land, although many arguments are offered as to why it is undesirable to use them. "Poison" may be used, however, if we extend the term "chemical fertilizers" to "chemicals in agriculture."

Leonard Wickenden wrote:[15] "The real menace to both soil and health is to be found in the pesticides which have burgeoned forth since the 1940's. When a crop (whether it be fruit, grain or vegetable) is sprayed, much of the spray inevitably falls on to the soil. . . . When spraying is repeated several times during a season, year after year, the accumulation of poison in the soil reaches a high figure.

"Steady, cumulative poisoning of the soil is one of the big worries of agriculture in all parts of the world where poison sprays are used." Poisons in the soil, stated Mr. Wickenden, kill the soil microbes which protect plants from disease. "As everybody knows, today, antibiotics are derived from microscopic soil organisms. . . . If soil microbes are killed the soil dies with them, and a dead soil will not grow good crops." (This has been discussed at length in Chapter 10).

Leonard Wickenden offered many reasons why chemical fertilizers are undesirable to use in farming and gardening. He explained that chemical fertilizers are water-soluble. They feed directly into the plant, rather than through the soil. "While man's soluble chemicals did not destroy nature's system, they did, to some extent, throw it out of gear." Animals that were fed crops, grown on land to which man's chemicals had been added, lacked the vigorous health which characterized those which consumed food produced by nature's own system. In an attempt to correct this situation, scientists began to add chemicals directly to animals' food. Disease, however, persisted, and all the scientists could do was to add more and more supplements until even the corn and mash of the barnyard hen are now 'medicated' with a dozen or more additives. Yet the hens still die—occasionally even before the end of the year of life which (the experts have decided) is all that the modern hen is entitled to.

"What of the crops themselves? Alas! Their health seems no more robust than that of the animals they feed. To protect them from blight and mildew and fungoid diseases of many types, the farmer is urged to spray his crops with ever-more-powerful fungicides. Not only in nature unimpressed by such methods, she seems to think that crops which require such constant medication are unfit to live, and she seeks constantly to destroy them with battalions of insects."

The argument frequently given by advocates of chemicals in agriculture is that a chemical is a chemical, regardless of the source. However, an analysis of soil or food merely for chemical composition, is merely *one* type of analysis, and oversimplifies. These conventional chemical analyses have long been used to support the contention that there are no detectable differences between the produce of land receiving chemical fertilizers and the produce of land receiving organic materials.

Now, however, there are new methods of assessing nutritive values—not all of them chemical. Sensitive crystallizations can be photographed. They have been described[16] by Dr. Gerhard Schmidt of Switzerland and others. These photographs reveal differences that may appear subtle, but play important roles. Some chemists deny that a substance can be different, whether it is natural or synthetic, as long as it has the same chemical formula. But biologically and physiologically, there may be differences in behavior. Such photographs show further differences between soils treated with chemical fertilizers and those treated with natural fertilizers. Differences are also seen in the foods grown upon these soils.

A scientifically controlled experiment in England has been conducted for a score of years, which begins to reveal some of the differences in farming practices conducted along chemical lines, and those conducted along organic lines. The work, known as the Haughley Experiment, is conducted on a 236-acre farm. The farm is divided into three sections. One is organic. Another is chemical. The third is a combination of the two. A comparison of the plants and animals fed on these three different sections is recorded monthly by a biochemist. More than 25,000 separate analyses of soils have already been taken. The results are not yet drawn conclusively. The directors wish to continue the experiment for many more years in order to achieve scientific validity. Up to the present, the tests reveal data favorable toward the superiority of the organic section. The data also confirms the belief that soil depletion is linked with malnutrition.

Dr. Raymond Bernard expressed[17] this view: "While chemical fertilizers produce a forced and rapid growth of plants, they lack the vitamin and mineral content of more slowly growing naturally fertilized ones."

The Chinese,[18] without the use of any chemical sprays or fertilizers, have the highest yield per acre of any nation of the world. The Hunzas, already described earlier, maintain a high level of soil fertility, using only natural materials.

Dr. Alexander Berglas adds his support:[19] "If we consider modern artificial fertilizers from the point of view of symbiosis, we find the symbiotic situation has been strongly affected. Straight chemical fertilizers are employed at the expense of the natural soil flora. True, soil life is at first encouraged, but the exceedingly diverse microorganisms that must live on organic matter are progressively destroyed. Bacteria and plants are interdependent. Today the natural fertility of the soil is being destroyed. The manifold life of the soil has been destroyed in its interaction, and with it, the marvelous symbiosis between soil, plant and man has been disrespected. Any disturbance of symbiosis outside our bodies has its effect within our community of cells."

In conclusion these are words of warning written[14] by Fairfield Osborn: "There can be no argument concerning the fact that manures and chemical fertilizers are necessary aids in maintaining soil fertility, but at best fertilizers are corrective supplements. In no sense should they, especially chemical fertilizers alone, be thought of as substitutes for the natural processes that account for the fertility of the earth. In the long run life cannot be supported, as far as our present knowledge goes, by artificial processes. The deterioration of the life-giving elements of the earth, that is proceeding at a constantly accelerating velocity, may be checked but cannot be cured by man-applied chemistry. . . . Further, it is above all necessary to keep the fact in mind that fertile soil is *alive* in the sense that it harbors many different kinds of living organisms that function in relationship to one another and provide, in effect, the health and productivity of the soil itself. *Ingenious as man is he cannot create life.*" (emphasis supplied)

4. "THERE IS WONDER POWER IN WONDER FOODS"

Critics of this statement make it appear that if you recognize certain foods as outstanding in nutritional value you are a "food faddist" or a "crackpot," or are gullible for the snake-oil cure-all of the modern itinerant salesman. What are the facts? You have already read scientific evidence for certain nutritionally concentrated foods in Chapter 15, on "Wonder Foods." Here are some thought-provoking definitions provided by Dr. Clive McCay.

Dr. McCay reported[20] that until the hardened arteries and food fats stole the show, some of the characteristics of "food faddists," as defined by those who wrote the articles against them and those who shouted in hackneyed cadence that "fads are rampant," were the following:

"1. If a person presses his own vegetable juice he is a faddist, but if he drinks the commercial 'V-8' he is normal.

"2. If a person buys vitamins from a house to house salesman he is a faddist but if he buys them from a mail-order house he is all right.

"3. If a woman buys cosmetics from the peddler, she is normal but if she takes brewer's yeast to improve her complexion she is a faddist.

"4. If a person has brown sugar on his table he is a faddist but if it is white he is not.

"5. If a housewife makes skim milk into yogurt she is a faddist but if it goes into hot chocolate she is normal.

"6. If a person puts rose hips into his lemonade he is a faddist but if he merely adds rum he is normal.

"7. If a person eats whole grain bread he is probably a faddist and well 'regulated,' if he insists upon white flour products he is probably normally constipated.

"8. If one produces a garden with little or no spraying he is a faddist, but if he has no garden he is probably normal.

"9. If one attempts to cleanse his teeth by eating raw fruit for dessert he is a faddist, but if he eats pie made with synthetic sweetener he is probably overweight.

"10. If one advocates fluoridation of city water supplies he is normal, but if he advocates the sale of fluoridated products in drugstores he is a faddist.

"11. If one believes that food industries should constantly attempt to improve the nutritive value of their products he is a faddist but if he believes they should center attention upon fancy packages he is normal.

"12. If one believes that there are no deficiency diseases in America today he is normal but if he believes arteriosclerosis is such a disease he is a faddist.

"13. If a person believes his dragged down feeling in late afternoon is best counteracted by coffee, cocktails and carbonated beverages he is normal but if he takes brewer's yeast he is a faddist.

"14. If one takes cortisone or aspirin for his arthritis he is normal but if he thins down his body, drinks warm milk and cod liver oil he is a faddist.

"15. If one grinds his own flour in the kitchen he is a faddist, but if he buys heavily bleached flours from the grocer's shelves he is normal.

"16. If one conserves the health and time of his physician by doing his own thinking and reading about nutrition he is a faddist but if he wastes the time he is normal.

"17. If one eats wheat germ on his breakfast food he is a faddist but if he feeds it to his dog he is normal.

"18. If one eats sprouted beans in America he is a faddist but if he eats them in Honolulu he is probably Japanese.

"19. If one eats sprouted alfalfa for a salad green he is a faddist but if he eats sprouted lettuce leaves he is normal. If one eats potato sprouts he should phone the undertaker in advance.

"20. If one eats cottonseed oil he is a faddist but if he eats it in his 'French fries' after hydrogenation he is normal.

"21. Three hundred years ago if a man ate tomatoes he was thought to be committing suicide; today he is normal."

5. "CERTAIN TYPES OF COOKING UTENSILS ARE HARMFUL TO FOODS"

Copper: Unlined copper is known to destroy vitamin C. However, unlined copper pots and pans are relics of the past.

Aluminum: You might like to try this experiment in chemistry. Put one teaspoon of soda to one pint of water in each of three types of cooking ware: aluminum, glass, and enamel. Boil. Pour off each of the three solutions into separate glass containers. In the solution cooked in aluminum you will notice a cloudy residue or sludge. This is aluminum oxide, insoluble in water; which is released from the utensil by cooking alkaline foods in it. You must decide for yourself if you wish to eat or drink this mixture. The Mellon Institute of Industrial Research ran some tests[21] using aluminum and glass for cooking. Coffee, apple butter, oatmeal, and stewed tomatoes cooked in aluminum all yielded some trace of aluminum residue. During these tests, it was found that by stirring the food with a metal spoon, a galvanic current was set up. This promoted the solution of aluminum, and increased the amount found in the food.

One of the conclusions of the test stated that "the absorption of aluminum is so slight that there is little danger of toxic effects when taken by mouth in moderate amounts."

At variance with this statement, however, are several other conclusions reported in the same study: "Warm and cold blooded animals are susceptible to large amounts of aluminum when it gets into the blood, causing general paralysis with lowered sensibility, hyperemia and congestion of the gastrointestinal canal . . . aluminum compounds which go over into the blood may cause poisoning."

"Hospital patients awaiting operations were then given meals containing aluminum, and blood let during the operation was analyzed. Again traces of aluminum were found."

"The amount (storage) increases with advancing age."

"Only very large doses, indeed, have been found to give rise to certain phenomena of physiological irritation."

"It is recognized that soluble aluminum salts, in comparatively large doses, are toxic and may tend to produce gastric ulceration in the same way as other non-specific irritating substances."

"The absorbed aluminum circulates in the blood, is stored especially in the liver, brains, kidneys, spleen and thyroid."

Stainless steel: According to an article entitled "Stainless-steel Cooking Utensils,"[22] they are *not*, strictly speaking, stainless or corrosion-proof. Certain acids present in foods will attack the surface, discoloring it, carrying some of the metal into solution in the food, and possibly etching the surface of the utensil in such a way to be readily visible. When the steel becomes etched, it means that some amount, usually slight, of chromium and nickel has been dissolved and has been mixed with the food cooked in the pan. Ultimately, the metal-contaminated food is eaten."

It is important to recognize a factor that is becoming more and more significant: the hazards of ingesting day by day very small amounts of toxic substances. The tiny amounts of metal which may get into the food from the cooking pots represent one of many daily exposures of a similar nature.

It would seem from the above that at the present time the cooking ware so far unknown to offer hazards, are those of glass, unchipped enamel, and porcelainized iron.

6. "PROCESSING AND COOKING REMOVE NUTRITIONAL VALUE IN FOOD"

Dr. Edward J. Ryan wrote:[23] "Anyone who speaks up against food adulteration in any of the many forms is subject to 'name calling.' The most common epithets are 'food faddist' or 'food fakir.' If you object to spraying foods with poisonous chemicals, piking fruits green and then applying a dye, to injecting or administering antibiotics to poultry and dairy herds, to removing minerals and vitamins from natural foods, to adding chemical adulterants to preserve foods from normal chemical changes, you are offending . . . some of our largest and most influential corporations . . . we can be certain that the public relations counselors will go to work to change the situation—even if that requires a bit of character assassination directed against those who are in the opposition.

" . . . Every time that a natural substance is removed from a food, every time an adulterant is added to a food, the balance in nature is disturbed. . . . The chemical and cellular processes within the body cells cannot react to the passing whims of chemists without disturbance in function. It took thousands of years for the body to adjust itself to changing environmental conditions. When these conditions are suddenly altered by the actions of men, the cells cannot make the adjustment—disease is the result."

In Chapter 6 we have already discussed food processing. Agreement with our findings came from Dr. Roger J. Williams who said:[24] "There is an increasing tendency to refine or process the foods that we use, in order that they may be handled, stored and transported more easily.

". . . It would be fortunate, in a way, if we could refine our foods so that weevils and insect larvae could not live in it, and still retain its value as human food. Unfortunately however, insects need approximately the same vitamins that we do, and when a food material is so refined that the insects cannot live in it, we should be suspicious of it.

"Many products made from white flour have the fundamental weakness of white flour itself. . . . Among these products, besides breads, are cakes, cookies, crackers, doughnuts, pancakes, spaghetti, macaroni and the like. . . . It is easy to be deluded about the values of such foods by the presence in them of a small amount of milk or eggs. . . . The net result is still an incomplete food."

As for nutritional loss from cooking, Dr. Williams added: "Vitamin C is the most easily destroyed of all recognized vitamins, and may be decomposed by ordinary cooking. . . .

"Since the majority of the important [vitamins and minerals] are soluble in water, they can be largely removed from food if the food is cooked for a long time in an abundance of water and the water discarded. Unfortunately this is too often done. . . . Even with the very best practice, there is still some loss of vitamins by cooking."

Vitamin-mineral losses transferred to the liquids in which they were cooked (including canned foods) range from 60 to 80 per cent.[25] This means that there is often more vitamin content in the cooking water than in the vegetable itself. It is true that vegetables and fruits frozen or canned at the peak of growth are sometimes higher in vitamin-mineral content than the tired vegetables which have to be revived daily in the marktes by water spraying to make them appear fresh. Fruit, picked green and consequently less nutritious than the tree-ripened varieties, reminds me of the title of an article: "Never Mind if Its Unfit to Eat—*Will It Ship*?"[26]

7. "SUBCLINICAL DEFICIENCIES ARE A CONSTANT DANGER"

The Nutrition Foundation stated:[27] "Faulty nutrition in early years, even before birth, may cause breaks in health at a much later period. The "time bomb" aspect of nutrition is added to the immediate and evident risks imposed by deficiencies and imbalances at any age."

The Foundation added that injuries to the liver, kidneys, pancreas, adrenal glands, and other organs can be induced in experimental animals by deficiencies in the diet. Before exploding into full-fledged diseases, however, the symptoms remain hidden, elusive, unrecognizable. They are known, at this "simmering" stage, as "subclinical deficiencies." They *can* be recognized, as Dr. Tom Spies has pointed out, by physicians alerted to nutritional deficiency symptoms.

Dr. Roger J. Williams gave his reaction:[24] "When the body doesn't get the food it needs, it tries to protect itself. One of the ways it can protect itself is by slowing down the machinery. . . . Everything concerned with the body becomes sluggish. . . . Realizing that deficiencies in the human diet do not make themselves known promptly . . . a deficiency may be so severe as to cause disintegration or complete breakdown, or be so mild that it cannot be detected by a physician and will reflect itself only in a feeling of laziness or general good-for-nothingness on the part of the person affected. . . . In other cases the effect may be spread over many tissues, and the illness may be hard to recognize and describe."

In the introduction to his book, Dr. Spies admitted:[28] "The extent of disability and economic loss from health related directly or indirectly to impaired nutrition is unknown, largely because many physicians (1) do not recognize the deficiency diseases or (2) fail to realize how seriously deficiencies can affect health and so fail to treat them adequately." This discussion refers mainly to subclinical (nonapparent) signs. However these are the forerunners of major deficiencies, as described in the "nutritional time bomb." (See Chapter 3)

HOW EXTENSIVE ARE MAJOR DEFICIENCIES?

There have been a number of surveys, and they seem to indicate that such deficiencies are widespread. Here are some of the findings:

Dr. Ernest E. Lockhard and Dr. Robert S. Harris of the Massachusetts Institute of Technology analyzed both home-prepared and customer-selected restaurant meals eaten by seventy-one adults in the suburbs of Boston and New York City. They found[29] that the intake of niacin came up to only 25 per cent of the recommended dietary allowance of the Food and Nutrition Board. Vitamin B2 intake was only 37 per cent of the recommended amount; vitamin B1, only 38 per cent; vitamin C, only 52 per cent; calcium, only 63 per cent; and iron, only 72 per cent.

These same researchers conducted another sampling of diets across the countryside. Of 3,336 diets analyzed, they were found to be even more deficient in vitamins than those in the New York City and Boston study.

In Chicago, a similar study[29] of 7,363 children showed that 72 per cent had unsatisfactory diets. Yet at least one-third of the cases were from families who could afford to buy any desired food.

At Cornell University, another survey showed[29] that fully half of a large group of teen-agers from New York

State were not getting the nutrients recommended for good health by the Food and Nutrition Board.

In Nebraska, nutrition specialists analyzed[29] the food eaten by 242 members of forty-six families. Of the mothers, 59 per cent were deficient in calcium; 26 per cent in vitamin A; 28 per cent in vitamin C; 32 per cent in vitamin B1; and 22 per cent in vitamin B2. Dietary deficiencies were common among boys of all ages. But the most striking incidence of poor diet was found among the adolescent girls from thirteen to fifteen. 25 per cent of these maturing youngsters fell well below the safety level in their vitamin A; 42 per cent were getting insufficient amounts of vitamin C; 50 per cent were deficient in vitamin B1; and 25 per cent were far below their level of vitamin B2.

At Iowa State College,[29] Dr. Ercel S. Eppright analyzed all the meals eaten by 180 teen-agers during seventeen days. The diets of half of these girls were found seriously deficient in calcium, and low in iron and vitamin C.

Anna P. Bowes, Director of the Bureau of Nutrition of the Pennsylvania State Department of Health, conducted[29] a broad survey of 6000 American family's diets. She found that the diet of 65 per cent of all children in that study were deficient in one or more essential nutrients. Lack of vitamin D was the commonest deficiency of all. Even in the highest economic level groups, 58 per cent of those under twenty years of age had diets that fell far below recommended allowances.

These studies reveal what is happening today. We are reaping the harvest of biologically inferior foods grown on deficient soils. We should be aware of the importance of changing this situation, as well as the need for supplementing our diets to make certain that they are not deficient.

In view of these studies, we must re-examine the statement of the Foods and Nutrition Council: "All the nutrients essential to the maintenance of health in the *normal* individual are supplied by an adequate diet, one which fulfills the Recommended Dietary Allowances, revised 1958, developed by the Food and Nutrition Board of the National Research Council. . . . If the diet contains the key food groups *in sufficient amounts*, nutritional supplementation should be unnecessary." We must ask who is the normal individual? We must also ask who is eating these foods in necessary amounts? The answer to both questions seems to be that such persons are nonexistent.

Thus closes the debate. We rest our case.

18. How Can You Eat for Health and Youth? A Summary

THE AGING PATTERN

1 We all need certain elements in our bodies every day for maintenance and repair. If the body is denied these necessary building and repairing materials, it slowly begins to break down. At first, deficiencies may show up as vague complaints. Later they become serious ones. Such diseases are called degenerative or deficiency diseases. Scientists now know that this gradual breaking-down process is what we call "aging."

2 Although there are other causes of body deterioration such as stress, infection, etc., correct nutrition is one of the most important tools to keep tissues in repair and thus prevent much of the aging process. In many ways, aging can be retarded or reversed to a degree, depending upon the individual. It is never too late to start. Some improvement is almost always possible.

3 Results are not apparent overnight. It is the long pull that counts. Nutrition should be thorough, complete, and persistent. At first, a "good" day will come now and then. Later, they will come more frequently.

4 Except for certain basic needs which everyone shares, each individual is, like his fingerprints, a unique pattern. Without becoming a hypochondriac, study yourself to determine what foods, and how much of them, are best for you. Seek guidance from a nutritionally trained physician, if necessary. He can speed your progress.

5 Keep close to nature. Man has not learned all of nature's secrets, and cannot perfectly duplicate natural products. Eat foods as close to the original state as pos-

sible, and obtain foods as nutritious as you can find. Remember that nature is the healer. Doctors admit that they do not "cure." They merely try to remove the offending substance so that the body can heal itself.

Professor A. H. Stevens remarked:[1] "The older physicians grow, the more skeptical they become of the virtues of medicine, and the more disposed to trust to the powers of nature."

CHOOSING THE MOST HELPFUL FOODS

1 Appetite or taste for certain foods is not always a reliable guide. This is particularly true of the habit-forming foods such as salt, carbohydrates, sugar, alcohol, tobacco, coffee, etc. Improper childhood eating habits may need to be replaced with new foods which are more helpful. *Everything you put into your mouth should build you up, not tear you down.* Fortunately this type of eating can also be pleasant eating.

2 Refined or "enriched" foods are less nutritious than natural ones. Choose food with extreme care. Avoid food treated with chemical additives, sprays, preservatives, colorings, stabilizers, sweeteners, or other artificial measures. Avoid meat treated with or exposed to hormones, antibiotics, pesticides, etc.

3 Avoid foods, whenever possible, which are grown on depleted soil, picked green, or have had a long shelf life. Such foods have a reduced vitamin, mineral, and enzyme content.

4 Eat as much raw food as feasible. Processing such as cooking or freezing often causes some vitamin-mineral-enzyme losses. Begin your meal with a salad. End it with a piece of fruit. Use breads and cereals made from freshly ground whole grains. Bake your own bread whenever possible. It will be healthful, delicious, and satisfying. When you do cook vegetables, use methods suggested later in this chapter. Always save vitamin-mineral-rich cooking juices to add to soups or juices. But do as little cooking as possible.

5 Learn to be a good consumer. Refuse to sit back and accept regulations which are to your disadvantage. Learn to read labels, and make intelligent choices. Make inquiries from your food suppliers. Do what you can to encourage them to stock fresh, wholesomely raised foods. During the summer, grow some of your own foods if possible, or try to locate growers who can supply you with wholesome produce.

6 Eat as many special "wonder" foods as possible because they are richly endowed with food values. Fortify your cooking with such ingredients whenever opportunities present themselves. Check with some of the newer-type cookbooks which offer suggestions for their use. (See Appendix Chapter 11, #1a)

7 Abandon outmoded ways of doing things. With each article of food, ask yourself: Does this have to be cooked in this manner, or does it have to be cooked at all? Add such things as raw peas, slivered young green beans, grated raw beets to salads. Use sprouted seeds and beans as often as possible for additional vitamins from an inexpensive source.

8 When health and nutrition are discussed, stand up and be counted. When you entertain, use the opportunity to demonstrate that nutritious foods are also delectable.

9 If you meet criticism that fresh, uncontaminated food is hard to obtain and expensive, remember this:[2] "With [food] at an all time high, how can any of us afford to be healthy? But doctors' prices are going up, and the price of rooms in hospitals too, so how can any of us afford not to be healthy?"

10 Eat simply. Eat less but make it more nutritious. Overeating, along with undernourishment, shortens life.

SUGAR

Sugar is better for you as a flavoring than as a food. (Those who suffer from low blood sugar should substitute protein.) Gradually cut down on rich desserts, pies, cakes and other sugared foods. Commercial gelatin desserts are 65 per cent sugar. Instead use fresh fruits, cheese, or nuts for desserts.

PROTEIN

Although some people prefer not to eat meat, they still need protein in some form. Our bodies are largely made of protein, and protein food is necessary. Few people eat enough protein. If you do not eat meat, of even if you do, check the other protein sources to be certain that you are eating an adequate amount, and that you are choosing complete proteins. Meat and dairy products are complete proteins. Brewer's yeast, wheat germ, soybeans or soybean products, cottonseed flour, and a few different nuts are the only known complete non-animal proteins. Organ meats are storage depots for vitamins and minerals. Therefore they are more nutritious than muscle meats. Be certain to include liver often, along with steaks and chops, fish or fowl. Heart, kidneys, brains, and sweetbreads are also nutritious. Natural cheese is preferable to refined or processed cheese.

BEVERAGES

Finding the proper beverage is a problem. If you suspect that your water supply contains any contaminant chemicals such as chlorine (which can be eliminated by boiling), detergents, fluorine, etc., use bottled spring water, such as Mountain Valley Water, available throughout the United States. If you have a water softener, attach it to the hot-water tap only. Evidence shows that drinking softened water may be harmful.

Coffee drinkers will be interested in the following. The caffeine in coffee is a habit-forming drug. It is harmful to those with low blood sugar or ulcers. Although it peps you up, it also overstimulates a tired body. It might be compared to whipping a tired horse. Decaffeinated coffee is a wiser choice, although it does not add nutrition. Cream in coffee gives some people indigestion. Strong tea has many of the same disadvantages of coffee.

The caffeine content of some common drinks were listed in the following table by the American Medical Association:[3]

one cup or bottle:	caffeine grains:
coffee	1½-2
Pepsi-cola	1 - ⅕
Spur	⅞
Tea	½
Sanka	¼- ½

If you do drink coffee, couple it with a protein food to give it staying power. Sunflower seeds or cubes of cheese are helpful.

Dr. Clive M. McCay discovered that soft drinks, particularly the colas, caused tooth decay because of their sugar and phosphoric acid content. (See Appendix Chapter 7, #7). Dr. McCay has suggested a "pickup" drink of brewer's yeast dissolved in hot water.

Adelle Davis wrote:[4] "Both chocolate and cocoa interfere with calcium assimilation. I assure you that I am just as sorry as you are that chocolate and cocoa are not valuable foods." However, there are chocolate substitutes. The carob pod, or St. John's bread, is available[5] both in pod form, and powder form. It has a chocolate-like flavor, is rich in vitamins and minerals, and has none of the objectionable features of chocolate.

Fruit juices, according to a report,[6] caused tooth erosion. Dr. Melvin E. Page, D.D.S. also observed that they elevate blood sugar abnormally. Whole fruit seems to be a better choice.

At the present time, milk is also a problem. It may harbor strontium 90, iodine 131, penicillin, wax, pesticides, etc. Many nutritionists prefer raw certified milk, plus powdered skim milk for cooking to offset the cost. Yogurt and kefir can be made with either type. As a milk substitute, soy-bean milk,[7] an oriental staple, has been suggested. Bone meal has also been suggested as a source of calcium for those who do not use milk.

Although large amounts of liquid in any form are known to wash water-soluble vitamins out of the body, the most acceptable beverages in normal amounts seem to be weak tea, herb teas, decaffeinated coffee, and pure water.

Dr. Spies found[8] that a good diet is not enough. He found that many of his patients were unable to eat the bulk of food necessary to supply adequate amounts of vitamins and minerals. Poor teeth, poor digestion, and numerous other vitamin antagonists made added vitamins necessary.

But, added Dr. Spies, "Vitamin therapy alone is not sufficient. Repeatedly I have stressed that vitamins cannot take the place of a liberal, well balanced diet and here again I wish to stress that the diet which is adequate for the normal person will not suffice to restore the nutritional status of a malnourished person."

Therefore, for best results, use a highly nutritious diet, *plus* vitamin and mineral supplementation. Drs. Spies, Biskind, and Williams, whose works I've quoted extensively in Chapter 12, agreed that neither the diet, nor supplementation, will bring results unless they are used consistently. They all stress the importance of including *all* known vitamins. They all agreed that those vitamins and minerals as yet undiscovered, exist concomitantly with those already known, in natural products. Synthetic or isolated vitamins may have a role in certain temporary uses as drugs, under medical supervision, but natural products in general are preferable.

Following are the general rules for vitamin therapy known at present:

1. Until health is achieved, large amounts of vitamins may be necessary, by mouth or injection. This is best supervised by a nutritionally oriented physician. Once health is restored, smaller daily doses may be sufficient.
2. No one vitamin works alone. Each one co-operates with, and acts as a check and balance on, the others.
3. If one vitamin is given, the other members of the vitamin family (known as a complex) should also be given. If one factor is stepped up, the other factors should also be stepped up. Intake of massive doses of single vitamins may upset the intricate natural balance.
4. Improving the general nutrition, in addition to supplementation, will probably produce the quickest results. It is not a question of *either* supplementation *or* good nutrition, but *both at the same time*. The power foods are

those which are highly concentrated in natural vitamins, minerals, and enzymes.
5. Natural food and natural vitamins are safest.
6. It is best to take vitamin supplements with meals.

MINERAL SUMMARY

1 Minerals are as necessary as vitamins. Both work together.
2 Trace minerals are being recognized more and more for the important role they play.
3 As with vitamins, there are still unknown factors with minerals. Growth factors such as auxinon foods is one.
4 Enzymes are necessary for life itself. They also promote health and youth. They exist only in raw foods. They are killed by processing such as drying, cooking, pickling, smoking, etc.

A CHECK LIST OF NATURAL SOURCES

To be certain that you are getting all of the known vitamins and minerals check this list. Amounts necessary vary with each individual. A nutritionally trained physician can help you discover the proper amounts for you, if you are in doubt. The following list gives in alphabetical order some of the richest natural sources for various vitamins and minerals:

Vitamin A: eggs, liver, colored vegetables, capsules of cod-liver oil (some prefer the water-soluble to the fat-soluble cod-liver oil)

Vitamin B Complex: brewer's yeast, liver, or dessicated liver, wheat germ, yogurt, and other fermented milk cultures, sprouts, whole grains

Vitamin C Complex: (Bioflavonoids) Also includes Vitamin P. Whole orange, with as much white membrane as possible. This provides 1,000 mg. bioflavonoids as well as about 100 mgs. ascorbic acid.

Bioflavonoid capsules. Made of citrus or rose hip sources. Labels usually read: 100 mgs. each of bioflavonoids and ascorbic acid.

Acerola cherries, sprouted seeds.

Vitamin D:
Wintertime: cod-liver oil. You may use the minted flavor mixed with orange juice.
Summertime: sunshine in normal amounts.
Bone-meal tablets or powder.

Vitamin E: Wheat germ daily.
Cold pressed vegetable oils
This is the most expensive vitamin, but also one of the most necessary. According to Drs. Shute, we need a minimum of 100 units of alpha tocopherol daily. A nutritionally trained physician should guide you if your need is greater.

Vitamin F: (Unsaturated fatty acids)
Cold-pressed vegetable oil
Lecithin granules

Vitamin K: Green leafy vegetables
Yogurt helps you to manufacture it in your intestinal tract.

Minerals:
Calcium: raw milk, skim milk, natural cheeses, turnip greens, bone meal
Phosphorus: wheat bran, wheat germ, milk, natural cheese, egg yolk
Iron: parsley, lentils, beef liver, molasses
Trace elements: kelp, dulse, bone meal, brewer's yeast.

RULES FOR EATING FATS AND OILS: A SUMMARY

1 Don't deny yourself cholesterol-rich food. Your body requires and manufactures cholesterol, whether you eat it or not.

2 Do eat foods rich in lecithin. In natural, undisturbed foods, cholesterol and lecithin occur together. Lecithin dissolves cholesterol, and prevents it from piling up in the arteries. Hydrogenation destroys lecithin. Pasteurization reduces it greatly. Lecithin is found in such foods as egg yolk, soybeans, sunflower seeds, and most vegetable oils. The simplest way to guarantee enough lecithin in your diet is to use lecithin granules, made from soybeans.

3 Do not cut out all fats and oils from your diet. Your body needs some. Too little is as undesirable as too much. Take the middle road. Trim visible fat from meat. Substitute unsaturated fats whenever possible for saturated ones. The greater the substitution, the better. Use

oils instead of solid fats for cooking. Avoid hydrogenated fats and oils.

4 Read labels. If the product is labeled "refined" add vitamin E in wheat germ or vitamin form to your diet as a precaution. Cold pressed crude oil contains vitamin E. Refined oils do not.

5 If you eat butter, add lecithin to your diet. Some special margerines[5] are made of vegetable oils which are not hydrogenated (or hardened).

6 Avoid rancid oils. Do not allow oils or fats to become so hot that they smoke while cooking.

7 Use the list of acceptable unsaturated fats and oils (See Chapter 14) as a guide for your foods. Remember that there are also other factors involved in high cholesterol. Avoid sugar and excessive amounts of carbohydrates. Use natural, whole-grain flours and cereals. Enrichment of refined cereals and flours cannot be considered as a satisfactory substitute.

8 Include the following vitamins in your diet, since they have been found helpful in preventing high cholesterol: B complex. C and E.

9 Maintain serenity. Stress has been found to interfere with the body chemistry, including fat and cholesterol utilization.

10 For heart protection, follow Dr. Morrsion's list of suggestions in Chapter 14.

CHANGING HABITS

Changing habits is a painful process. But once you have acquired the technique of substituting food which is nutritious for food that is harmful or does nothing for you at all except to fill your stomach, you have taken your most constructive first big step. Continue to make changes gradually, until you have achieved an eating pattern which meets your needs. It may turn out to be an easier way of life than the old method. You may discover, as thousands of people have testified, that you begin to experience a surge of renewed energy or other health improvements, in which case the effort will be worth while.

We cannot buy health or youth. We must work harder to conserve them in this atomic age in which we are faced with threats to health never before experienced. Our schooling, and this includes physicians with earlier medical training, did not prepare us to cope with such problems as powerful poisons, chemicals, synthetics, or the hazards of radiation. In times past such things were unknown. Today medical schools and meetings are doing what they can to keep physicians informed, but it is almost impossible to keep abreast of an avalanche of new information. To complicate matters, many of the additives and poisons are so new that it will require years of study before effective treatment can be learned.

To protect yourself as much as possible, avoid eating or contaminating your body with poisons, or unknown or unnatural substances. Fortify yourself with as many nutritional aids as possible. Such a program can help strengthen, protect, and build resistance to those things over which you exercise very little control.

THE BEST METHODS OF COOKING VEGETABLES

If vegetables are to be cooked at all, they should be prepared with the minimal loss of valuable nutrients. A study[9] measured the exact mineral and vitamin losses resulting from four different ways of cooking twelve vegetables. The methods used were cooking with:

1. ½ cup of water
2. just enough water to cover vegetables
3. pressure cooked with ½ cup of water
4. in waterless utensils, with no added water

Vegetables used were: asparagus, beets, broccoli, cabbage, carrots, cauliflower, peas, potatoes, squash, and spinach. The average retention of vitamins and minerals were as follows:

Cooking			*Phospho-*	VITAMIN			VITAMIN	*Caro-*
Method	*Calcium*	*Iron*	*rus*	*B-1*	*B-2*	*Niacin*	*C*	*tene*
Pressure	87.9	85.6	84.9	78.9	82.6	81.6	72.5	89.1
Water-covered	77.8	76.7	72.1	62.6	63.1	59.2	52.7	79.1
½ c. water	87.9	86.4	84.1	75.6	78.3	80.5	64.5	86.5
Waterless	94.4	90.4	92.3	91.0	87.9	91.3	73.3	94.7

Unfortunately, in the above testing, steaming was not included as a cooking method. As can be seen from another test, conducted by the Department of Agricultural Chemistry at the University of Wisconsin, the average percentage of mineral *losses* for all vegetables steamed was less than other methods:

Minerals:	*Steaming:*	*Stewing:*	*Boiling:*
Iron	21.3	40.1	48.0
Calcium	10.7	20.3	31.9
Phosphorus	16.7	29.9	46.4
Magnesium	18.6	31.8	44.7

The Chinese method of cooking vegetables is easy, and retains values. They heat a small amount of oil in a heavy frying pan, until the oil is hot but not smoking. They choose young, crisp vegetables, which they shred, dice, or chop finely. The vegetables are added to the oil, stirred constantly at high heat, for only one or two minutes, then removed and served immediately. The vegetables are still brightly colored and crunchy. String beans, broccoli, and carrots may require slightly longer cooking by this method.

YOGURT

I have adapted this recipe from Adelle Davis' *Let's Eat Right to Keep Fit.* When you have all your materials assembled, and become experienced in doing it, you will discover that it takes only about five minutes to make approximately sixteen pyrex custard cups of yogurt!

Blend:	1½	cups powdered skim milk
	1	large can evaporated milk
	1	c. commercial yogurt
Add:	6	c. warm water

Fill custard cups, set on a pan and keep warm at a temperature between 105 and 120, for about two hours, or until custard-like. I use my electric oven turned on at the lowest possible point. This is the place where, although unmarked for temperature, the warming light is first turned on. A gas oven, if too hot, may need to be turned off and on again at intervals. An oven thermometer may assist in checking. Another method which some people find successful is to set the yogurt glasses in a pan of warm water, covered, and kept warm over a top-stove pilot light. Others have found it worth while to invest in a yogurt maker. (See Appendix Chapter 15, #10)

As soon as the yogurt sets, transfer it to the refrigerator, since the friendly bacillus continues to multiply, increasing the tartness. If the yogurt is cooked too long it will develop a water consistency similar to overcooked custard. If carefully watched, at the end of the two-hour period, the texture will be smooth, and the flavor will be mild.

SPROUTS

Dr. C. W. Bailey of the University of Minnesota reports that although wheat starts out with very little vitamin C, it increases 600 per cent during early sprouting. Vitamin C complex is alive with minerals, vitamins and enzymes.

Dr. Paul Burkholder of Yale University gives the approximate increase of the B vitamins in sprouted oats:*

Nicotinic acid	500%
Biotin	50%
Pantothenic acid	200%
Pyridoxine (B6)	500%
Folic acid	600%
Inositol	100%
Thiamin (B1)	10%
Riboflavin (B2)	1350%

Here is still another table,* showing the vitamin C value of germinated seeds:[14]

	Milligrams in 100 grams
Oats, whole	11
after germination 96 hours	20
after germination 120 hours	42

Peas, dry	0
after germination 24 hours	8
after germination 40 hours	69
after germination 86 hours	86
Soybeans	
after germination 24 hours	108
after germination 72 hours	706

These tables* demonstrate why sprouts are considered as "wonder foods." They are an extremely inexpensive method of obtaining a concentration of vitamins, minerals, and enzymes. In addition to high values in vitamins B and C in sprouts, vitamin E was found in Calcutta to increase in mung beans, lentils, pigeon peas, wheat, rice and corn.

Make certain to buy your seeds or dried beans at a store where they are fresh, unsprayed, and packaged as *food*. Seeds that are packaged for planting purposes may contain mercury compounds, etc. Sprouts can be germinated from any whole, unhulled seeds or beans. Try some of the following: alfalfa, mung, soy, fenugreek, pea, sesame, wheat, etc. It is just as easy to sprout a few containers holding seeds as it is to prepare one. If you plan to have a few containers, you can have a daily supply of sprouts, and you can plan a variety of them. They should be eaten at their peak of goodness. They may be eaten as they are, or mixed in a tossed salad. They may be sprinkled over soup or cereal, or ground up in liquid drinks. Although they may be cooked in breads, meat loaves, casseroles, etc. some of their value is destroyed in cooking. For detailed directions in preparing sprouts, consult the cookbooks listed in the Appendix, Chapter 11, #1a. A few final words of caution: Do not eat potato sprouts. They are poisonous.

* Tables combined from R.H.A. and V. Plummer, *Food, Health, Vitamins*, Longman, Green & Co., 1942, and Dr Pauline Berry Mack, University of Pennsylvania.

CEREAL

Here is a recipe for a raw cereal, patterned after a formula by the Bircher-Benner Institute in Europe. It is called Muesli:

2 cups dried, raw oatmeal flakes (organic preferred)
8-10 shredded wheat biscuits, hand crumbled
½ cup soy lecithin granules
¾ cup wheat germ
1 cup sunflower seeds
1 cup sesame seeds
½ cup raw sugar
½ cup powdered, skim milk
½ box currants or small raisins
1 small package hazel nuts or filberts (raw)
1 small package sliced almonds (raw)

Mix thoroughly. Refrigerate. For each serving, float several tablespoons on top of a bowl of raw, certified milk, or reconstituted spray-dried powdered milk. This cereal is delicious.

Grated apple or fresh, seasonal fruit may be added.

A group of elderly people who were fed on muesli gained energy within six weeks.

The English and Scotch eat oatmeal stirred into boiling water until it thickens. Stir one portion of cracked grain (oatmeal, cracked wheat, cracked rye, etc.) into two parts of boiling water. Lower the heat, and allow to cook for ten or fifteen minutes.

BAKING YOUR OWN BREAD

Bread baking is truly one of the most satisfying of all homemaking experiences. If you have never tried it, by all means begin. If you do not achieve 100 per cent success the first time, don't give up. Bread-making is an art, and requires some experience. Since flours differ greatly in texture, flavor, and handling qualities, you'll have to experiment before you can decide which flour suits your purposes best. In general, a hard western wheat makes good bread. If your first bread-baking efforts are not perfect, remember that the results can be rescued from failure, by utilizing them for bread crumbs or poultry stuffing! Meanwhile, try, try again.

100 PER CENT WHOLE-WHEAT BREAD

This recipe will make three-2-lb. loaves or four-1½-lb. loaves

12 cups unsifted whole-wheat flour
½ cup raw sugar, honey, or molasses
⅓ cup cooking oil or melted shortening
2 tablespoons of salt
5 to 6 cups milk or potato water. Scald fresh milk

Mix well and let stand overnight at room temperature, or at least three hours in a covered pan. This is absolutely essential. (A six-quart pan is ideal, or a deep-well pan in an electric stove is also good.) By allowing the mixture to stand, the bran will have a chance to absorb the moisture so that the bread will not be dry or crumbly.

After the dough has stood for the few hours, or overnight, soften 2 yeast cakes or packages in 2 to 4 tablespoons of warm water. Add this to the dough mixture, working it in thoroughly with hands. Let the dough rest for 10 minutes. Place dough on well-oiled surface. Grease the hands. Knead the bread thoroughly for 10 minutes. This will develop the gluten, which is essential for good mixture and volume. Do not add any flour during the kneading. If the bread is sticky, add a little oil to the surface, or to your hands. Knead until light and elastic. Roll into a ball. Oil surface. Put back in covered pan and set in a warm place (80-85°F.) to rise for one hour, or until it has doubled in bulk. Knead dough for about two minutes. Then divide dough into three or four equal portions. Allow the dough to rest, while you grease the loaf pans.

To shape the loaves, take each loaf separately, and press or roll into a flat oblong sheet. Take one long side and fold one third of dough over and press with the palm of hand to seal. Fold the other long side, overlapping the first, and press and seal as before. From the end, fold one third of dough over and press and seal. Fold the other end, overlapping the first. Press again. Roll the sheet of dough lengthwise, like a jelly roll, making a round, compact loaf. Seal overlap. Place in greased loaf pan with overlap underneath.

The vigorous pressure on each loaf removes the air from the dough and produces a smooth, even-textured bread that is light, without having large air holes. Lightly grease the top surface and set in an oven for 15 to 20 minutes at 80-85°F. until it has risen, but is not quite double in bulk. Bake immediately for 1 hour and 10 minutes at 325°F.

CORNELL BREAD

For those who are not yet accustomed to bread made entirely of whole grain, there is a good "transition" bread which tastes more like traditional white bread but has far more nutritive value. It is called "Cornell bread" because Dr. Clive M. McCay of Cornell University worked on its formula. Dr. Estelle Hawley[10] tested this bread on rats. One group was fed the Cornell bread. Another was fed "enriched" bread. The rats eating the Cornell bread thrived, as did their children, and their children's children, down to the fourth generation. The rats which ate the ordinary "enriched" bread became sickly and starved-looking. Their children were stunted, and their children died off before the fourth generation.

Cornell bread has a fine flavor and the best nutritive value of any white-bread loaf tested so far. It includes unbleached white flour, wheat germ, soy flour, and non-fat dry milk. The Cornell bread mix may be purchased already mixed and ready for bread baking, or you may assemble your own ingredients.[11] Here is a recipe you may wish to try:

BEGINNER'S LUCK BREAD

This recipe is adapted from one by the Great Valley Mills, Bucks County, Pennsylvania. It makes two loaves.

1 package of yeast
2 cups of water
8 teaspoons of oil
2 tablespoons of honey
6 cups of Cornell flour
1 heaping teaspoon of salt

Dissolve the yeast in 1/4 cup of warm water. Combine liquids. Add to combined dry ingredients. Sift in flour. Beat smooth after each addition. Allow to rise in oven until double in bulk. Knead until springy (about 10 minutes). Shape into two loaves and place in oiled pans. Let rise until almost double in bulk. Remove from oven. Turn oven heat to 375°F. Put bread in hot oven, and bake for 50 minutes.

OATMEAL BREAD

This bread provokes kudos from those who eat it! This recipe makes 2 loaves.

1 cup long-cooking oatmeal
2 cups boiling water.

Combine and allow to stand for 15 minutes.
Dissolve 1 cake or package of yeast in 1/4 cup lukewarm water.
Combine the following with the oatmeal-water mixture:

¼ cup honey
¼ cup blackstrap molasses
2 tablespoons of oil
½ teaspoon of salt

Add the dissolved yeast. Then add 5 cups of Cornell flour mixture. Blend thoroughly. Cover the bowl. Allow the mixture to stand at room temperature and rise until double in bulk. Grease board and hands with oil. Knead dough until it is springy and elastic like foam rubber. Add oil as necessary, to prevent hands and board from becoming sticky. Divide dough in half. Place in well-greased bread pans. Allow dough to rise until almost double in bulk. Bake one hour at 350°F.

WHOLE WHEAT ROLLS

1 cake or 1 package of dried yeast
¾ c. lukewarm milk (or reconstituted dry skim milk)
1 t. salt
¼ c. oil
2 T. honey
1 egg, well beaten
3 c. (approximately) stone ground whole-wheat flour

Soften yeast in lukewarm milk. Add salt, oil, honey, and egg. Slowly add flour. Beat thoroughly. Knead. Roll into ball. Grease surface. Cover bowl. Allow to rise two hours. Punch down. Shape into rolls. Arrange on greased cooky sheets. Let rise until double in bulk. Bake 400°F. for 10-15 minutes. Yields 8-10 rolls.

You will recall, from the beginning of the book, that there are various methods of slowing down the process of aging.

Part One has dealt at length with the present hazards in maintaining health and youth because the situation is crucial. But this does not mean it is hopeless! Nutrition is one tool to help and repair health.

In his book, Hunza, *John Tobe writes, "I believe the lessons I have learned in Hunza have already removed years from my appearance. I am healthier, more active and of happier countenance. I possess boundless energy and seldom tire.*

"Since my return from Hunza, I have drastically reduced my intake of cooked foods. In their place I am consuming as much as possible (depending on my ability to make the changes) natural, unprocessed, uncooked foods. . . . I believe that I can live to be 100 years old."

Part Two deals with other techniques, also necessary. All should be used together, in balance, to achieve well-being.

PART TWO

19. How Can Exercise Help?

One way to stay young is to include some type of exercise in your daily living. The body, like any other machine, tends to atrophy with disuse. It needs exercise to keep its motor humming. Exercise is also a wonderful way to keep a good figure. Physical-culture instructors and dancers usually preserve good figures long past their middle years. A woman who keeps up her daily exercise can maintain a "girlish" figure most of her life. As for men, have you ever seen a fat male professional dancer? Look at Fred Astaire, Ray Bolger, Gower Champion, or José Greco.

Thomas K. Cureton, Jr., director of the Physical Fitness Laboratory at the University of Illinois, said: "One of the greatest needs for the average American, in addition to food, is exercise. The best possible food cannot be assimilated without it."

J. D. Ratcliff reported:[1] "Muscles can starve through lack of exercise—witness hospital patients who eat perfectly balanced meals and get out of bed too weak to walk. Reason: muscles are nourished by thousands of miles of hairlike capillaries, which transport food and carry off wastes. In the sedentary adult, large numbers of these capillaries are collapsed, out of business, nearly all the time. Exercise alone can open them up and provide better muscle nutrition.

"A number of studies have shown beneficial results of exercise on the heart muscle. A study of London busmen, for example, showed that drivers, who sat all day, had far more heart trouble than conductors who were constantly on the move. Similar checks have shown office workers more prone to disease than postmen."

Another report[2] suggested that businessmen and other sedentary workers who are willing to do a few push-ups or other exercises may save themselves from heart attacks. Scientists stated[3] that exercise also helps prevent strokes. "Loafer's heart," the reverse of athlete's heart, is becoming a health threat to soft-living Western countries, reported Dr. Wilhelm Raab, former chairman of Experimental Medicine, University of Vermont. Even serious leg disturbances such as gangrenous conditions of feet and legs were healed or helped when patients were encouraged[4] to get out of bed and walk despite their ailments. Of twenty-two patients, twenty-one were spared amputation. That one woman who lost her leg was denied the exercise by her family who felt that it was cruel to make her walk in such a condition. At least one case of varicose veins has been reported responding to consistent walking.

The simplest way for any of us to get exercise is to get out of our seats. Unfortunately we have become a nation of sitters. We sit at our desks at school or in the office. We sit in the car or bus. We sit in front of TV.

Exercise has many benefits for you. It helps relieve tension and fatigue. It helps you sleep better. It gives you zest for life. It puts a sparkle in your eye and a spring in your step. It gives you courage to tackle your problems. A fit person uses about 20 per cent less energy for any movement than does a flabby or weak person.

Dr. Theodore Klumpp reported,[5] "Fatigue is the greatest obstacle to a happy, useful life for oldsters. Its best antidote is physical activity when one feels tired. Over and over again it has been demonstrated that physical activity at the end of a trying day brings a degree of freshness and renewed energy that nothing else can equal."

Dr. Herbert Pollack stated[6] that without cutting calories, you can lose ten pounds a year simply by walking a mile a day. Harvard researchers found[7] that short periods of exercise were not followed by an undesirable increase in appetite. In fact, lack of activity led to weight gain.

Whatever type of exercise you engage in, it is advisable first to check with your physician. Exercise, in aging people especially, should be adapted to individual needs. For those who have always been sedentary, mild exercises may be started and gradually increased. Bonnie Prudden advised:[8] "All it takes to keep fit is determination, a little time and knowing what to do. The secret is simple: substitute activity for inactivity as much as you can in the course of a normal day and take a few minutes each day to do some easy exercises.

"Give up trying to make life less physical and make it more physical. Call up your friends and invite them to meet you after dinner for a walk. If you always take the elevator, start walking the last flight. Every two weeks add one more floor that you walk. If you're a commuter, walk to the station. Don't drive the children everywhere; make them walk."

WHICH CALISTHENICS ARE BEST?

The best calisthenics are those which fit *your* needs. They should be exercises designed to improve your own figure problems, as well as to stir up your circulation and make you more nimble. There are exercises for everybody: for invalids, or lazy people to do in bed; there are exercises which require huffing and puffing to satisfy the more energetic. There is Yoga, a system of exercise which originated in the East, designed to treat both mind and body. Perhaps it appeals to you, perhaps not. A somewhat Americanized version of Yoga has been developed.[9] This type of exercise has been recommended by directors and professors of Physical Education at the University of Wisconsin, and Texas State College for Women, as well as by the famous dancers and exponents of physical fitness, Ted Shawn and Ruth St. Denis. Miss St. Denis commented about her instruction under her mentor, Joseph H. Pilates: "Under his treatment not only is the body rebuilt and rejuvenated, but the mental and spiritual refreshment is beyond calculation."

Regarding calisthenics, Bonnie Prudden remarked: "Most people dread the thought of exercise because they consider it either dull, or too much work, but ten minutes of easy new-type exercises which are fun to do, can keep you in the pink no matter what age you are."

Manya Kahn, an exercise consultant in New York City, said: "Exercise is the basis for strengthening the muscles, taking care of the over-fat and toning the body. If the body is in fine fettle, the face will show it; the two (face and body) go together as a unit."

WHAT KIND OF EXERCISE IS BEST?

Exercise should be varied, simple, and anything but dull. It should make the whole body work. Walking and swimming meet all of these requirements. Men won't like this statement, but an hour of homework such as cleaning out the basement or attic uses up about 150 calories. Twenty-five minutes spent filling up the wood box eats up 150 calories, as does a half hour of fast leg work on a bicycle. Or eight minutes of fast outdoor play with your children can also relieve you of 150 calories. Climbing up sixty-eight steps can help shed ten calories, or a ten-minute walk to the station or office can eliminate 100 calories.

Before you women begin to feel too smug about making the most of your manpower by getting a little work out of your husband, you might like to hear how Mae West kept her figure. She doesn't drink, she doesn't smoke, but she *does* do calisthenics every morning. She said: "My father was a muscle man, and I learned this from him." Pause for applause by men.

Walking seems to be one form of exercise which can be practiced by everyone. It requires no equipment. It can be performed by anyone, any time, and fitted into practically any schedule. It stirs up your circulation, gets you out into the fresh air, and it can be done alone or in a group. It isn't too strenuous. People of all ages can indulge in it.

There is another type of exercise, called the Mensendieck System.[10] This involves standing still in one spot, while you resculpture your entire body. This is similar to the research which has shown that if you contract a muscle for only a few seconds, and perform it once every day, you can recondition, tone and improve that muscle 4 per cent in a week and 50 per cent in twelve weeks. The system looks like child's play when someone else does it, but believe me, it isn't.

The Mensendieck system, like Yoga, is most effectively learned with the help of an instructor. However there are helpful books[11] which describe various types of exercises, if you prefer to do some study on your own.

Dr. Arthur H. Steinhaus, Dean of Physiology at George Williams College, said:[12] "In a German laboratory where I worked, it was discovered that a muscle can grow only at a certain rate—and a very small amount of the right exercise will start it growing at that rate. If you contract any one of your muscles to about two thirds of its maximum power and hold that for six seconds once a day, the muscle will grow just as fast as it can grow."

For arm muscles: Press one clenched fist forcibly into the other palm.
For stomach muscles: Pull in the stomach, and suck the diaphragm up until the whole diaphragm is flat. Release little by little. Do it gently the first few times to avoid possible lightheadedness. Many movie stars do this exercise to improve posture and flatten the tummy.
For muscle tone: After a bath or shower, loop the towel behind your neck. Then pull your chin in, pull forward on both ends of the towel and resist with your neck, as hard as you can, just six seconds. Do it only once. Now slide the towel down to the small of your back. While pulling forward on the towel, resist by contracting the muscles in your buttocks and belly. Loop the towel under your toes and pull up with both hands while your toes push down. Hold it for six seconds, then let go. Once on each foot and you're done for the day.

If you have an exercise class in your neighborhood, or a trained individual willing to organize one, grasp the opportunity. Most people lack the self-discipline to continue exercises alone. However, for those who are too shy to exercise anywhere except behind closed doors, there are self-instruction books which are helpful.[11] Choose a time you can depend upon to be regular and uninterrupted. Perform your exercises regularly. Choose exercises which appeal to you, suit your needs and your figure. Remember that success comes from doing a little every day regularly.

DO YOU REALLY KNOW HOW TO BREATHE?

Someone has remarked that children and people who act a little muddle-headed are simply oxygen-starved. If they were taught to breathe properly, their thinking or learning ability would improve accordingly. Try this test on yourself:

Stand before a colored picture which is hanging on the wall in average light. Assume good posture. Empty your lungs as completely as possible. Then breathe in through your nose until your lungs are as fully expanded as possible. Purse your lips tightly as if to whistle. Then blow out the air very slowly, again emptying the lungs. If you do this exercise slowly you will experience no oxygen dizziness. Now do the breathing exercise once more and concentrate on the picture. You may discover that your sight seems to sharpen. The colors seem brighter, and the details of the picture will seem clearer.

Now, time yourself in adding a column of figures before taking this breathing exercise. Then try the breathing exercise and check the time as you add a similar column of figures. You will be surprised at your improvement and greater alertness.

Next, try memorizing the lines of a poem before and after breathing exercises. You may find that your head is much clearer after breathing.

At the Institute of Breathing in London, Captain William P. Knowles has been consulted by 60,000 sufferers from respiratory ailments. In World War II the Air Ministry and the Army asked him to instruct officers and men on how to achieve physical fitness through proper breathing. Here are some of Captain Knowles's suggestions:[13]

—Careful breath control, with emphasis always on exhaling, helps us to relax under tension. Because we are so preoccupied, most of us are only half-breathers. We breathe in because we have to, but we should train ourselves to breathe out as well.

—We sigh a lot. It is a sign that we have neglected our breathing and need to exhale. The sensible thing to do is to learn to sigh in a systematic way. Don't wait to sigh in desperation.

—Breathe outward slowly during any tense or tedious situation. It will recharge your system. Breathing improvement can bring exhilaration to mind and body.

—The more we breathe out, the more we can breathe *in*. A watch-size instrument, called a spirometer, can measure how much we exhale and consequently can inhale. This is known as or *Vital capacity*.

—You can lean against a bitter wintry wind much better if you remember to breathe out. Half a dozen long *out*breaths will fortify you and bolster your resistance.

—Breathe out slowly before you begin any task, whether it is boring or disturbing, whether you are jittery or have stage fright. If you are climbing a long flight of stairs, breathe out before you start up, then breathe in on two steps, out on two steps.

Leslie O. Korth, D.O. and M.R.O., gave his version[14] of a breathing exercise which helps the circulation, and tones up the system in general. He pointed out that many of us become tense, and we literally hold our breath. This of course deprives us of necessary oxygen, and interferes with health. He recommended that the following exercise be done for ten minutes at a time, three times a day, working up to fifteen minutes. He assures us that regularity and persistence are rewarded, with the following:

Inhale through the nose, expanding the rib cage until the lungs are completely filled with air, but without strain. Hold the breath for a second or two and then—and this is important—exhale *slowly* through the mouth on a sustained note of OO, with the lips making a rounded "O." Although it is best to make this humming sound of "OO" on a single note, the entire scale or even a tune can be used to prevent monotony.

Remember, your body is the most important machine of all. Exercise can rescue you from that "half-alive" feeling. Correct breathing can tone and relax you, clear your mind, help to quiet your emotions, and help maintain youth.

20. Is There Hope for Sagging Faces and Figures?

Muscles sag as they weaken. Exercise shortens and strengthens muscles as it raises or returns muscle toward normal. Exercise not only can recondition the body, as we know it can, but it can also recondition the face.

NATURAL FACE LIFTING AT HOME

Elizabeth Gilfillan[1] is a glowing example of a woman who has not only lifted her own face by natural methods, but the faces of many others. She devised a system of facial exercises to remove wrinkles and sagging facial contours, for both men and women.

Frederick M. Rossiter, M.D.[2] has written clear, concise instructions for face lifting and removal of wrinkles. His book is illustrated.

Sanford Bennett[3] also related how face exercises changed his appearance from an old to a young man. He then discusses Ninon de l'Endos, the seventeenth-century woman who allegedly "never grew old." When she was seventy, men still swooned over her. According to reports, her face and figure continued to dazzle the gentlemen until she died at the age of ninety-one. Ninon did not attribute her continued youth to any miracle or inherited traits. She claimed it was due to her exercises, which she taught her intimate friends.

Ethel Foresman,[4] a cosmetician, advocates and practices facial exercises. She contends that face muscles need not sag at any age.

All of these exponents of techniques of natural face lifting are in general agreement. They maintain that circulation slows down with age. Face muscles, like any others, become lazy through lack of exercise, and begin to droop. Man used to creep on all fours. But now, as an upright creature, his muscles must resist the constant pull of gravity.

FACE-LIFTING EXERCISES

To prevent wrinkling, put a little oil or cream around your eyes, where "crow's-feet" sometimes form. If you wish to cream or oil the rest of your face and neck, do so. Now, look in the mirror. Elevate your chin slightly. Open your mouth about an inch. Now smile upward as hard as you can, tensing your face and neck muscles into this smiling position. Relax. Do it again. Continue squeezing the face muscles into an upward smile as hard as you can until your face becomes warm. It may not warm up easily at first, but it will gradually become easier in time. The smiling exercise pulls the muscles up. It counteracts the sag or droop pull of gravity.

In doing these exercises, remember that the more often you do them, the faster the result will come. Regular, consistent daily exercises make them strong and keep them firm. Any muscle can be strengthened only through continued, regular effort.

You can do these simple exercises many times during the day. When you are waiting for a stop light, when you are walking up or down the stairs, or in the privacy of your own bathroom, you will find time for practice. Or, you may do these facial exercises at the same time that you do other daily exercises. Men may do them at shaving time. Women may do them when they put on their make-up. Remember: "There are no homely women—only lazy ones."

Dr. Rossiter claims that this exercise described above will firm flabby muscles and tissues; strengthen the uplift muscles; cushion and upholster your face and cheeks; improve muscle tone and give the face a rounded fullness. It tends to normalize the face. If the face is too fat, it will slenderize it somewhat. If the face is too thin, it will fill it out. Dr. Rossiter claims that men will find that they can shave more easily within about two weeks' time due to the added skin elasticity and smoothness. This exercise will remove weariness and paleness from your face within minutes. Dr. Rossiter suggests that people with high blood pressure go easy with this exercise, since the severe contraction of the tissues of the face and neck does increase the blood to the brain. For the average person, however, this is a fine stimulation.

NECK REJUVENATION EXERCISES

By contracting or tensing the neck muscles at the same time that you tense the face smile, you can improve your neck. Age shows quickly in the neck. This exercise reduces double chin, or still better, that "cow's brisket" which dangles beneath so many aging chins. Dr. Rossiter claims that he took up his "brisket" one inch in a month.

Ethel Foresman[4] wrote: "There is no cosmetic preparation in the world that will strengthen muscles, give tone and vigor to the tissues." She considers a chin strap absurd. But, she says, exercise does help sagging jowls. It firms and strengthens muscles, as well as helps to promote new cells which in turn produce skin aliveness and translucency. It counteracts sluggishness, pads the skin, and removes crepiness.

This is Miss Foresman's exercise for cheeks and chin: Push the lower jaw forward; now open and close the mouth against resistance, working the jaws fairly rapidly. Drop the head back as far as possible. Repeat the exercise. Turn the head toward the right shoulder, and repeat. Then turn the head toward the left shoulder, and repeat.

Ninon de l'Enclos described a metal facial mask she used in the seventeenth century to bring the blood to her face. As an exercise she nodded her head as far backward and forward as possible against resistance. I was interested to discover whether there existed any twentieth-century counterpart to Ninon's facial mask. I finally did find one but the price was prohibitive! However, recently I discovered another, which I think is excellent.[5] It is not made of metal. It is, in my opinion, surprisingly effective due to its ability to bring fresh circulation to the face.

As for Ninon's exercise of nodding her head backward and forward, I have discovered an easy way to do this. Hang your head over the edge of the bed. Bring your head up to your chest against resistance. While you are lying in that position, rotate your head in a complete circle, first in one direction, and then in the other.

Sometimes, the way you carry your head may contribute to throat crepiness. *Carry your head erect with chin parallel to the floor.* At night, substitute a baby pillow for a large pillow to avoid throwing your head forward. Women, as a reminder to yourself to keep your chin parallel to the floor, wear a snug choker of pearls. Men and women, avoid leading with your chin. A head thrust forward is one of the first admissions of age. Try the following exercises frequently during the day to keep your chin and neck smooth and firm:

1. Tilt your head up slightly. Hold a finger sideways under your chin. Now lift your chin over your finger.
2. Open your mouth about an inch; widen to a smile, now bite down *hard* many times as if you are biting a big nail, or trying to take a big bite out of a large apple.

HOW TO ERASE WRINKLES

Sanford Bennett stated:[3] "The true secret of restoring to the skin the smoothness of youth is friction. The skin can be polished and the wrinkles rubbed out like any other piece of leather, and the palms of the hands and the tips of the fingers are the very best tools to use for that purpose. Use a lubricant of some kind to prevent chafing. To keep the skin in place while you rub, stretch the skin between the first and second fingers of one hand and rub with the fingers or palm of the other. Don't be too energetic at first."

Mr. Bennett suggests another technique. This is the use of an egg-white mask. Beat up the white of an egg to a light froth. Apply it to your face with a shaving brush, particularly where wrinkles appear. Allow the egg white to dry and remain on your face for about five minutes. Then rinse it off with warm water.

Dr. Rossiter claims that the following eye exercises will reduce the scowling or frowning wrinkles between the eyebrows, forehead wrinkles, small wrinkles on or close to both eyelids, and also prevent bagging under the lower lid and will remove dark circles under the eyes. Such benefits certainly make it sound worth while! Here is the exercise:

After oiling or creaming the "crow's-feet" area, close and contract one eye hard. At the same time, lift and contract or tense the entire face on the same side. It looks like a wink, plus a smile. Repeat this movement twenty to thirty times per minute for each eye. Eventually increase the practice of this exercise so that you perform it several hundred times a day, or until you accomplish your goal.

WHAT ABOUT MASSAGE?

According to Dr. Rossiter, any simple movement back and forth on the skin is restful and pleasant, but of no value to wrinkles or muscles. But if you *contract* a muscle, and then massage it with fingers or palms, you may improve both the skin and the muscle. Massage as well as facials, should be given by trained operators.

One system of facial rejuvenation called "Profile Symmetry"[6] was developed as the result of someone observing a cat cure a muscle wound by licking it gently and methodically. An expert staff of trained muscle technicians have applied this technique to humans. They time the gentle massage to the heartbeat, and at the same time exercise the muscles beneath the surface to increase their tone, circulation, and normal tension. Tiny lines may vanish, sagging lines and double chins may improve, as the muscles are helped to prop up the face once more. There is no stretching or pulling in this treatment. Trained fingers rhythmically and gently palpate and adjust the muscles to restore youthful profiles. Your own home exercises, if done faithfully, may accomplish similar results.

WHAT ABOUT A SLANT BOARD?

We are told in the Scriptures, "Man shall renew his youth like the eagle." The eagle sometimes achieves the age of 250. It differs from other birds in that it flies with its head lower than its heart. A dog or horse after a hard run will rest with its head lower than its heart, probably to help ease the pumping load of the heart. If blood flows by gravity to the head, the heart has less work to do. Parrots, also long-lived, delight in hanging upside down from their perches. Dr. Donald Laird, in a series of experiments at Colgate University, found that man's brains functions 7 per cent faster and 14 per cent more efficiently when his head is lower than his heels, as in the slant-board position. Hospitals use this position for patients with prolapsed organs.

For these reasons, many persons have come to swear by the use of a slant board.[7] At least one former United States President uses one; one glamorous TV and movie-star grandmother carries hers with her wherever she goes. An article in *Life* Magazine showed a picture of another very young Hollywood actress using a slant board between shooting scenes. Another former movie star uses the Yoga headstand. In all cases, the object is to reverse gravity, and encourage fresh blood circulation to the head and face. By doing your face exercises on the slant board, it is much easier to coax the fresh blood supply into the face and warm it more quickly. You can do the smiling exercise, tensing, biting the imaginary apple *hard*, squeezing each side of the face upward, and so on.

Follow these exercises with the following final treatment, which should bring a warm glow of circulation to your face. Make certain that your face is well oiled or creamed first.

Open your mouth. Tense your face and neck muscles. With the heels of both hands, rub upward along your mouth. Then "iron" the face outward under your cheekbones toward your ears. Do this until your face is pink and warm.

With firm finger tips, smooth out your brow in a wing-like motion, starting at the frown area between your brows, and extending outward toward the hairline.

With the heel of your hand, "iron" and tense the area under your chin, until it, too, is pink and warm.

NUTRITIONAL AIDS FOR MUSCLE TONE AND TISSUES

—Since our bodies are largely made of protein, firm muscles depend upon a generous supply of protein in the diet.

—Vitamin E has been found helpful for circulation and muscles.

—Vitamin B6 is a muscle strengthener, best taken with its entire family, the B complex as in brewer's yeast.

—Lecithin keeps tissues healthy and plump by nourishing them and preventing that drawn look. This is helpful for reducers.

—Vegetable oils (unsaturated fatty acids): At least two tablespoons daily taken internally, prevent skin dryness and its resulting crepiness and wrinkling. This may be put in salad dressing, in tomato juice, "Tiger's milk," etc; Also, soy oil can be applied externally as well. Peanut oil applied externally is reported to plump up the skin.

—Vitamin C and the Bioflavonoids keep the body "glued" together and, according to one investigator, prevents that withering look.

—Cod-liver oil and raw milk, added to the diet, have been found to help skin plumping.

—Honey patted on the face as a mask is a folk remedy. The honey tends to stick to the fingers as they are pulled from the face. Perhaps this action stimulates circulation. Continue the patting for five minutes. Then remove with warm water, rinse with cool water. Your face will glow and feel smooth.

WHAT ABOUT POSTURE?

You can take off many years in a few seconds! People who slump look older. To prove it, a before-and-after picture of Bette Davis appeared in a magazine several years ago. In the first picture, she stood as many elderly people do—head thrust forward, shoulders rounded, abdomen protruding, back caved in.

In the second picture she was standing tall, her shoulders flat, her head erect, back straight, stomach pulled in. She looked years younger. Yet it had taken only seconds to change her posture and take away the appearance of many years.

You can take off the appearance of ten years in ten seconds by following the posture formula of John Robert Powers,[8] of the famous Powers Models. Here is his formula:

—Raise your rib cage. Keep it elevated at all times.
—Bring your ears back in line with your shoulders.
—Keep your chin parallel to the floor.
—Pull your stomach and pelvis in and up.
—Relax your knees.

If this seems too much to remember all at once, concentrate on keeping your rib cage elevated at all times. Actors and actresses use this as a key to good posture.

Elizabeth Gilfillan[1] offered this humorous suggestion for beautiful posture: "An osteopath told me to think of holding a penny in that crease between the buttocks. This magic thought automatically brings the hips under, the abdomen in, and straightens the upper back and neck. I changed the penny to a $5 bill, because I would be more anxious to hang onto that."

If you are troubled with round shoulders, or a dowager's hump, add one more piece of money. Squeeze your lower shoulder blades together as if you are holding a quarter. This total of $5.25 can really give you good posture! Maintaining good posture without effort becomes increasingly easier with practice, good nutrition, exercise, and, for many, with the aid of the slant board.

LOOK YOUR BEST

Remember that worry can create wrinkles or a strained appearance. Inner tranquility is the best good-looks insurance. Mary Margaret McBride reported the case of a man who walked up to a young engaged couple strolling along a city street. The stranger offered to buy them a cup of coffee. "Why?" asked the fiancé, immediately suspicious.

"Because," answered the man, "you look so happy. I come from Sicily where people are gay. In America, I miss seeing happy faces."

An artist friend of Mary Margaret McBride agreed with the stranger. Searching for faces to paint, the artist suddenly realized that every face he saw was tense, strained, or disagreeable. Just then, he caught sight of his own face in the train window. He discovered that he too had a strained look. He consciously relaxed his face muscles and tried to look pleasant. We should all make a mental note to wear a happy relaxed expression. It will give others a boost. Happy faces look younger, too.

21. How Can You Stay Slim?

Everyone is tired of hearing about calories. Lists of caloric values of foods are found everywhere. Some boxes of crackers even list the caloric value per cracker. If you don't know which foods are high or low in caloric value, just step up to your nearest newsstand. You will find any one of a dozen caloric books for sale. Let's not spend time discussing calories.

Nor shall we fuss about will power for staying thin. I believe that there are better ways of reducing than heckling yourself, or being heckled by others, over your will-or-won't power.

Instead, let's approach this problem of reducing in a realistic manner. Before you can learn to maintain your proper weight, you must find out the reason *why* you tend toward excess weight, if you do. Many persons blame their glands, but numerous studies have shown that overweight due to glandular imbalance is extremely rare. Other persons blame their emotions. Doubtless it is true that appetite and emotions are closely related. For many, when they feel frustrated, eating is a normal reflex. But compulsive eating may have its roots in other causes as well.

A study[1] of forty obese girls revealed that not one was overweight because of emotional disturbance. In several cases constitutional factors were involved. But by and large, the obesity of this group was traced to *family eating habits*. Thus, people who excuse their overweight because "it runs in the family" might do well to ponder over the fact that fattening food was probably the usual bill of fare, and that Mom, praised for her delicious cooking, loved to stuff her family.

Dr. Clive M. McCay stated[2] that a lean young animal has a better chance of living longer than a fat baby. Life-insurance statistics for adults point to the same conclusion. Overweight not only can cause you to be a target for deficiency diseases, but it can *be* a deficiency disease.

You may be overfed, but still undernourished. Stout people, just as frequently as skinny people, are often victims of malnourishment. Frequently, obese persons live on calorie-rich rather than vitamin-mineral-rich food.

However, there is at least one physician who voiced a dissenting opinion. Dr. Salvator Cutolo, Assistant Superintendent of Bellevue Hospital in New York City, does not think that everyone should be thin. He feels that it is better to be a little overweight—perhaps even up to ten pounds. He believes that a small surplus gives you the reserve of strength in the event that you should need it. He likens it to having a few dollars in the bank as protection against an emergency. Dr. Cutolo hastened to add that as a result of his long medical practice, he agrees that real obesity adds a load to the heart. But in his opinion, fad or on-and-off diets, can put a far worse load on the heart, and are more likely to shorten the life span, than slight overweight. Dieting, explains Dr. Cutolo, should be a gradual reduction of food, cutting quantities without excluding all foods except one or two. The body needs *all* the necessary health-building elements *every day* for maintenance and repair. A banana diet, or a cottage-cheese diet, for example, provides only a few of these necessary elements. By zigzag dieting, or "crash" or fad diets, the dieter may disturb his entire metabolic balance.[2a]

Dr. Fred D. Miller, D.D.S. wrote[3] that he has patched together too many mouths full of bad teeth which had disintegrated on crash diets.

Acknowledging individual differences, we have come to realize that the height-weight tables obviously do not fit the needs of everyone. Density of bones, size of frame, and fat-muscle ratio help to determine *your* best weight. Many authorities feel that your weight in later years should be the same or slightly less than when you were thirty. But even here, there are individual differences. One woman observed that when she drops below a certain weight, in order to achieve a "normal weight," she becomes irritable and difficult to live with. On the other hand, nearly everyone who has been too heavy and then reduces, feels more buoyant, and is able to climb stairs or a hill without shortness of breath.

Appearance is another guide for correct weight. At what weight do you look best? If you are able to pinch rolls of fat, or if your fat is flabby instead of firm, you are not looking as well as you might. Furthermore *every time you add a pound to your own normal weight, you look a little older.* Therefore, check the following list to help maintain *your* best weight.

TWELVE REASONS WHY PEOPLE OVEREAT

1 *Hidden hunger:* In this era of devitalized foods, you may have to eat many extra pounds of food in order to satisfy your body's needs and cravings for necessary vitamins and minerals. One man told me that he formerly ate slice after slice of white bread in his attempt to satisfy his hunger. When his wife began baking her own whole-wheat bread, he found that only one slice of bread sustained him until the next meal. Dr. Albrecht's animal experiments revealed that animals, like humans, also experience hidden hunger on devitalized foods, and consume more in order to satisfy their body needs and cravings.

Step up the vitamin-mineral-rich foods, and eliminate the hollow foods. The "wonder foods" of Chapter 15 are good reducing foods since they are low in calories.

2 *Lack of exercise:* Chapter 19 discussed this in detail. You should eat just enough to provide you with abundant energy for the type of life you live. Dr. Charles Glen King found[4] that physical exercise does not necessarily cause a desire to eat more, so don't be afraid of exercise.

3 *Alcohol and sweets:* Alcohol is a high caloric food, and it can also overstimulate the appetite. Don't overlook the accompanying hors d'oeuvres which are an additional source of calories. If you *must* drink, at least limit yourself to only one drink. Substitute raw vegetables for the goody concoctions.

Sweets are among the foods highest in calories. Worse yet, they pervert the appetite by causing a craving for more sweets. The Central Park Zoo in New York City recently banned permanently a visitor who persisted in feeding pastries, cupcakes, and candy to the Zoo's valuable seven-year-old orangutan, Katy. The Zoo authorities were forced to take this action when it became obvious that Katy was beginning to prefer sweets to a well-balanced diet.

4 *TV nibbling:* If you must nibble, try tomato juice and raw vegetables instead of the beer and pretzels.

5 *Low blood sugar:* This condition was mentioned in Chapter 7. People who suffer from this disorder are always hungry. Starving or stuffing will not correct the condition. Proper diet will help.

6 *Dieting without vitamin-mineral supplementation:* As one man told me, "I can't stay on a diet without my supplements. I get ravenously hungry without them. But with them, I am satisfied with smaller rations."

7 *The eat-and-run habit:* Take more time with your meals to get more value from them. If you chew everything twice as long, you will crave less food, and also satisfy your taste buds.

8 *Artificial foods:* Nature does not grow rich desserts, cakes, pies, thick sauces, or even sandwiches. Nature does provide, however, delicious fruits and salad vegetables, both of which are low in calories, as well as meats, fish, eggs, and poultry.

9 *Compulsive finishing of leftovers:* Some people cannot bear to see food wasted, and will eat remainders, whether or not they are hungry. Leftovers frequently are less nutritious because of vitamin losses, or they are dressed up with rich sauces.

10 *Eating as an escape mechanism:* Eating may be an "escape" from a disagreeable life situation. Children sometimes overeat to satisfy a nagging or an overindulgent mother. Adults may overeat because of loneliness or lack of interest in life. They may feel unloved, without friends or family. Others dislike their work. They may overeat for consolation. Some persons consider rich food as a sign of prosperity.

If the problem itself is solved, or lessened, the overeating may stop or lessen. A hobby or a sport may provide a substitute for overeating.

11 *Glandular imbalance:* This is the exception, rather than the rule. A sluggish thyroid does not burn food properly. In the case of disturbed metabolism, it is best to consult a physician.

12 *Wrong sequence of eating:* A hot, thin soup at the beginning of a meal stimulates the appetite. A salad served first fills you up with nutritious food and dulls an overactive appetite. Even eating the wrong meal at the wrong time can add weight. Here is an example, related by a woman:

"I come from a family in which every member is slim. We ate a substantial breakfast as we were growing up and had our main meal at noon. We ate a light

> supper in the evening. We ate very few starches or sweets.
>
> "My first job was in an institution where the main meal was at night, and the diet was full of starches and sweets. I put on weight alarmingly. When I returned home and ate once more as my family did, my weight returned to normal.
>
> "Then I married and my husband, and later the children, were gone at lunch time, so we had our large meal at night. My husband and I put on weight with that big evening meal. But later, we moved to a small town where we could eat our main meal at noon again, and we streamlined our weight in no time."

FOUR DIFFERENT SUGGESTED METHODS FOR REDUCING

There are various methods suggested to reduce weight and stay slim without discomfort. Here are four different approaches.

"SET YOUR APPESTAT"

According to Norman Jolliffe, M.D.[5] you should "set your appestat." This inner mechanism, which Dr. Jolliffe likens to a thermostat that automatically controls the heat in your home, actually exists in the body's hypothalamus, which is located near the brain. In most cases it is upset merely by overeating. In rare cases, it is upset by disease. Dr. Jolliffe concurred with Drs. Cutolo and Miller that seesaw reducing of on-again off-again is dangerous. It upsets the glandular system's routine, creates nervousness and irritability, and has been known to impair eyesight, cause rather than cure several deficiency diseases, and even shorten lives. A smooth-running body should be like a smooth-running engine. It needs regular, proper fuel to be run at a normal speed, with regular servicing. It can adjust to emergencies within reason, but too many emergencies may overstrain the engine.

Two measures will regulate your appestat, and you will not be bothered by a weight problem. Choose only natural, nutritious, high vitamin-mineral food so that the least amount, not the greatest amount, of food will satisfy your hunger. Use the concentrated foods discussed in Chapter 15 which will add nourishment without adding pounds. Then, use vitamin and mineral supplementation. The result may be that you can forget about reducing, and concentrate instead on good health. This should add up, not to a day-to-day diet, but *a new way of life!* One final warning: even though your appestat is once set, it can be upset by alcohol and/or sugar. Both of these "deaden" the signal system of the appestat. Sugar demands more sugar. Alcohol craves more alcohol.

"THE DU PONT DIET"

This is a diet which has been devised for people who wish to reduce gradually, and at the same time, to stay well. The diet has been tested thoroughly. It eliminates carbohydrates. In general, it consists of as much protein food as you wish, some fat, as much salad as you wish, and fresh fruit or cheese for dessert. It is a diet which is both satisfying and invigorating. Many celebrities live on the Du Pont diet day after day. The elimination of carbohydrates means cutting out all commercial sweets, cakes, candies, pies, pastries, cookies, and even bread.

"THINK YOURSELF THIN"

Thyra Samter Winslow wrote:[6] "We must make our subconscious work for us as we think ourselves thin. Only in that way can we become thin permanently and with the right results." Miss Winslow expressed the belief that once the subconscious gets the idea that we mean business and want to stay thin, we will drink and eat in moderation.

Cary Grant belongs to this school of thought. He said:[7] "Think thin. Believe you are thin, say you are thin, know you are thin. See yourself as thin and you will be thin. Especially just before you fall asleep at night. It won't happen all at once, but if you see yourself thin in your mind's eye, you will find yourself disliking fattening foods."

"PRAY YOUR WEIGHT AWAY"

Charlie W. Shedd has attacked[8] emotional problems of overweight people who eat for compensation and unhappiness. He is minister of the Memorial Drive Presbyterian Church of Houston, Texas. He personally lost 100 pounds by this method plus "thinking thin."

OTHER AIDS IN MAINTAINING PROPER WEIGHT

—Overweight due to excess water storage in the body can be handled in different ways. You can cut down on your intake of salt. Or, as Adelle Davis suggested,[9] you can use vegetable salad oils. She also suggested the use of vitamin C as a diuretic.

—Watch your weight by checking it daily on the scales. Weigh yourself at the same time every day, in the same amount of clothing. Don't allow the additional pounds to pile up. It is far easier to get rid of two or three pounds than twenty or thirty pounds.

—Eating fat in some form satisfies hunger more quickly and thoroughly than sweets. A tablespoon (roughly 100 calories) of vegetable oil added to a salad, or disguised in tomato juice, can save you the craving for a rich dessert (which may have 500 to 800 calories in sugar). Sunflower seeds are a good source of unsaturated fat.

—One group of women in the South Seas stay slim by nibbling all day long. This may prevent the build-up of a ravenous appetite. This idea might be adapted by serving smaller meals more often. However, you should remember to use nutritious foods.

—Dr. Clive M. McCay, as well as many others, suggests that we should all eat less. Dr. McCay suggests that it is possible to cut your diet approximately in half (or eat 1100 calories a day), but at the same time making certain that you fortify it with nutritional supplements. Although you may eat less food, you need the same minerals and vitamins.

WHAT ABOUT THE LIQUID DIETS?

June Owens reported:[10] "The latest rage with those who wish to lose weight is the 900 calorie powdered food formula. Get-thin-easy schemes have always been snatched up eagerly, if only temporarily, by those who need to reduce or think they do. . . ."

One drug company started the current craze with a product, and new ones are appearing every week.

"As an official of one drug-distributing house . . . explained it, 'The stuff's got tremendous potential. It can do $5,000,000 a year. Naturally everybody's going to jump on for a free ride.' "

Companies manufacturing these powdered-food formulas *claim* that the mixtures are a complete source of vitamins, minerals, proteins and carbohydrates, with little fat, containing 900 calories. The formulas are suggested for a snack, a meal, or a complete diet. Here is the listing of ingredients from one of these mixtures. Judge for yourself if this would offer a "complete diet":

Milk, Skimmed Milk, Non-fat Dried Milk, Sucrose, Corn Syrup Solids, Carigeenan, Guar Gum, Ascorbic Acid, Ferric Pyrophosphate, Niacin, Thiamin Hydrochloride, Vitamin A Palmitate, Irradiated Ergosterol, Vanillin (an artificial flavor)

June Owens continued, "Doctors questioned about the prepared powder for reducing generally agreed that is was perfectly safe for the average person to use. They agreed that if taken faithfully it would result in a steady weight loss. But there was disagreement as to the soundness of such a pattern for reducing.

" 'You'll reduce if you stick to it,' Dr. Norman Jolliffe, Director of the Bureau of Nutrition of the City Department of Health, said recently, 'But then when you have reduced you'll go right back to your weight problem.' "

Dr. Alvan R. Feinstein, of the New York University School of Medicine, and a specialist on obesity, agrees. "Dr. Feinstein was one of the originators of the Rockefeller Diet, a liquid formula devised at the Rockefeller Institute. Weight watchers seized on it enthusiastically about five years ago. That diet, which Dr. Feinstein said was released to the public prematurely, was criticized for being too low in protein. Dr. Feinstein feels high protein content is not necessary in reducing diets. The present formulas are similar to the Rockefeller diet, but with a higher protein content."[10]

Nutritionists have expressed varied opinions about liquid diets. It is true that a single glass of such a mixture may be more nutritious than the average white-bread sandwich and coffee or cola drink. But such mixtures do not provide enzymes found in fresh, raw food. Because most formulas are derived from synthetic materials, unidentified but necessary substances may be missing.

Recently, the Food and Drug Administration seized[11] some 6,345 pounds of such diet mixes because an analysis revealed that the "900 calorie food concentrate" contained 48 per cent less protein than its label declared and 22 per cent more fat. "Such a product obviously is not a reliable source of measured and balanced nutrition," commented F.D.A. The agency also stated, "The public's current preoccupation with the reshaping of the human figure—via a myriad of new liquid formula food diets—is also keeping the Food and Drug inspectors on the jump. Most manufacturers of the weightlessness preparations have carefully warned the dieters to consult their doctors. Also, for dieters' protection, F.D.A. required that labels on the can must give a complete run-down on the ingredients in the liquids."

I have been interested to follow the progress of several friends who have been trying out various brands of these liquid reducing mixtures. One man, who lived on this diet exclusively for two weeks, attended a cocktail party, took one drink, passed out and was bedfast for a week. Another man, who used a mix derived partly from natural sources, and who supplemented the diet with fresh raw vegetables as well as vitamin supplements, fared better. The best example I have witnessed is an executive who substitutes the drink for lunch only, with added fresh fruit or vegetables he takes with him from home to the office. But his other two meals during the day are extremely high in nutritional values. Personally, I find "Tiger's milk" a better and surer way of guaranteeing nutritional needs in a liquid meal. I can control all the ingredients which go into it, make certain that they are from natural materials, and vary it as I wish.

22. Are You Proud of Your Skin, Nails, and Hair?

I enjoy playing a "supermarket game." While I am waiting in line to have my items checked out, I usually inventory the contents of the shopping carts ahead of me. I try to discover if the contents of the carts match the physical appearance of the shoppers. For example, recently one cart contained a sack of bleached white flour, refined white sugar, spaghetti, cookies, cola drinks, and a can of spaghetti sauce. Everything in the cart was white, refined or "dead" (no enzymes). Sure enough! The woman herself was pasty white, slightly sallow, and pudgy with unwholesome-looking fat. She also gave the impression of being worn-out. On the other hand, I have observed that the people who generally have their carts laden with fresh fruits, vegetables, cheeses, meat, and fish look quite different. They are apt to be the ones whose skins glow; their hair is full of life and luster, and they themselves look as if they had vitality.

Despite this, most people seem unconcerned about the relationship of the appearance of their skin and hair with their general health. But they will look at a dog, comment on its gleaming (or dull) coat, and judge its health accordingly.

Remember that your face is not separated from your body. It is a reflection of it. American Indians used to diagnose body ailments by the lines in the face. Your hair is also a clue to health. After a cold, a bout with the flu, or a more serious illness, your hair may mutely tell the story of the recent body disturbance.

Dull hair and dry, scaly skin are often due to the following internal causes:

—lack of unsaturated fatty acids (found in fish or vegetable oils)
—lack of vitamin A
—underactive thyroid

Cod-liver oil contains all these necessities: unsaturated acids, vitamin A and D, as well as iodine which is helpful in balancing the thyroid. I have witnessed case after case in which a daily dose of cod-liver oil has produced a beautiful sheen in previously dry skin and hair within a month or less. One woman told me that her hair was too fine to take a "permanent." After a month on cod-liver oil, she had her first successful "permanent." A man who had suffered from dry skin and hair all of his life, now boasts of a satiny skin and a beautiful gloss to his hair, thanks to cod-liver oil. A teen-age girl, with paper-thin, dry flaky skin and dull, stiff hair also produced sheen and manageability in her hair and a glow in her skin with cod-liver oil. Two tablespoons of salad oil a day (corn, soy, safflower, etc.) are considered second-best to cod or halibut-liver oil. Vitamin E, found in wheat germ, helps too, since it assists the body in utilizing these oils more efficiently. Vitamin B1, found in brewer's yeast, has helped sluggish thyroids.

Leathery skin, particularly noted during menopause, yields to Vitamin A and E. Over-oily skin has been corrected by Vitamin B6 in particular. This too is found in brewer's yeast.

Tensions can drain your skin of its youth-giving fluids. So watch your emotions! Since Vitamin B complex has been found helpful in soothing the nerves, brewer's yeast may be helpful.

WHAT ABOUT COSMETICS?

In a recent New York City Broadway stage play, the actress portrayed a young girl gradually changing into a fifty-year-old woman. The only make-up used was that which gave her a moist, dewy look for youth, and a dull, dry appearance for her older age. The effect was completely convincing to the audience. A group of Long Island socialites learned this make-up trick from the experts. Instead of a heavy powder base and heavy powdering, they learned to use only a touch of light oil for sheen, a bit of rouge and lipstick, plus a little eye make-up at night. Instead of trying to cover up a shine, they tried to produce one! When a little girl "dresses up like Mommy" and applies pancake make-up to her delicate, natural sheen, she immediately takes on the appearance of years-older midget. The moral seems to be: to look younger, use the minimum of make-up. Try instead to develop a natural glow *from the inside,* achieved through proper nutrition, exercise, air, rest, etc.

WHAT CAUSES AGING SKIN?

Aging skin not only becomes progressively drier, but it also loses its plump, succulent look. Skin begins to age at about forty with most people. Elasticity disappears. Except for nose and forehead, oil glands actually become reduced in number. In some cases, heredity plays a role.

You may wonder why skin on the remainder of the body remains quite young, while the skin of the face ages faster. Prolonged exposure to sun, wind, and chemicals may cause premature aging. Look at the weather-beaten faces of fishermen or desert-bound natives. Research has discovered that in climates with higher humidity, *less moisture is lost from the skin.* This explains why most people look younger during a warm, humid summer than a dry, hot one. English women, known for their beautiful complexions, live in a moist, cool climate and lose little skin moisture. Living in an overheated house during the winter has been found to cause skin-moisture loss, and result in aging skin.

DO CREAMS AND OILS HELP?

Dramatic new studies show[1] that a moist skin retains its pliability and that it is the *water* retained in the skin, not lanolin, olive oil, or petroleum applied to it which keeps it young looking. It is the skin, dried of its moisture, *not* defatted skin, that becomes hard and brittle. An emollient cream acts only on the surface. It does not go deep enough to absorb adequate moisture from the body. But if the skin is encouraged to absorb a little body moisture, it can again become moist and pliable. This helps to prevent surface loss of moisture due to climate. *This is really news.* These studies show that the gallons of creams which women have been using for centuries, trying to keep their faces young, have all been for naught!

HOW CAN YOU PREVENT SKIN MOISTURE LOSS?

—Avoid excessive sun-tanning.
—Avoid exposure to strong wind.
—Avoid strong chemicals or external alcohol which dry the skin.
—Avoid drying soaps. The skin is naturally acid. Most soaps are alkaline. Most soaps are drying. Detergents are still more drying and irritating.
—Include unsaturated fatty acids in the diet, which stimulate the production of natural oils from the inside of the body. All oils help, but cod-liver oil or lecithin taken internally are especially helpful to pump up the skin.
—Avoid overheated rooms indoors.

Dr. Seymour L. Hanflin explained[2] that petroleum preparations such as mineral oils cannot possibly be absorbed by, and thus "nourish" the skin. Edible fats, however, can result in some useful replenishment of the skin oils. He suggested salad oil as a skin cream. Cold-pressed soy oil, because it contains so many elements found to occur naturally in skin tissue, is excellent.

There are special soaps which are helpful,[3] and some which are acid rather than alkaline. Regarding detergents, Dr. Hanflin explained that they are more concentrated than soaps. Women, forgetting this fact, may use too much.

WHAT ABOUT HORMONE CREAMS?

There has been much controversy waged over hormone creams. The most recent reports may offer encouragement. Estrogen-treated patches of skin have shown an increased water content, resulting in fewer wrinkles. Progesterone, a newcomer to the cosmetic field, has been tested[4] and found to increase the number of oil glands in the aging skin. These glands in turn produce sebum, a film which spreads over the skin, protects it against abrupt changes in temperature or humidity, and helps to maintain the moisture content of the surface skin. At least one cream[5] now on the market contains both estrogen and progesterone. These hormone creams should be approached with caution. According to one doctor's testimony[6] the small amounts allowed in cosmetics have shown no predisposition to cancer. However, he did admit that there is a "negligible" risk.

Dr. Joseph J. Eller, a consulting dermatologist to many hospitals, verified the fact that hormones can be absorbed through the skin, and if used in small amounts allowed the cosmetic industry, apparently are not harmful. Hormone creams seem to be helpful for women from fifty-one to seventy-nine, according to studies.[7] Younger women, still menstruating, did not derive much benefit from hormone creams. Perhaps the reason is that this younger group of women were still manufacturing their own hormones. Even with the group of older women, beneficial results did not appear for the first ten days. After the thirtieth to the fiftieth day, further benefits stopped.

Creams do not strengthen face muscles. However, studies[8] revealed that the skin surface is not only capable of absorbing hormones, but vitamins as well. This observation may lead to future use in cosmetics.

Four researchers at the Squibb Institute for Medical Research experimented with rats.[9] The rats were fed on a diet which was deficient in both vitamin B complex and vitamin D. Areas of skin of the rats were shaved, and both vitamin B complex and vitamin D were applied. After leaving the vitamins on the skin surface for only two hours, the experimenters again tested the animals for deficiencies. They found that the vitamin levels had risen in the bodies. To make certain that the vitamins were received through the skin only, the rats were prevented from licking off the preparation applied to the skin.

As a result of the foregoing, as well as similar research, some drug manufacturers now manufacture vitamin ointments.[9a]

SPLITTING NAILS

Splitting fingernails is a common complaint. It has been reported[10] that nail growth rate is speeded up by adding protein and vitamin A. Exposure to cold slows down the rate of growth. But what causes splitting?

Dr. Joseph G. Molner wrote,[11] "The commonest cause of soft nails—which is something seen usually in women rather than men—is not diet. It is contact with common chemicals. The most usual ones are detergents and cosmetics. Include in 'detergents' strong soaps and the many chemicals used around the house. Under 'cosmetics' I include polises, polish removers, and occasional injuries to the base of the nail from manufacturing tools."

Dr. Molner mentioned that calcium does not seem particularly helpful for splitting nails, but gelatin was. Gelatin has been used[12] with success in improving nail defects and splitting in both patients and nurses in two New York hospitals. Improvement was noted after three months, in which one envelope (one tablespoon) of unflavored gelatin was taken daily dissolved in liquid. Another report[13] noted successful treatment of ringworm infection of the fingernails with the oral use of gelatin.

However, because of the imbalance of amino acids in gelatin, (see Chapter 16, work of Voit and Kessels) nutritionists are concerned over the possible effect of gelatin taken alone over a period of time. To provide a *complete* protein for the body, it is suggested that gelatin be added to meat stock or milk, rather than taken alone.

The items which Dr. Molner mentioned, as contributing to nail splitting, may be controlled to some extent. Wearing of rubber gloves while washing dishes or doing any jobs where the hands are exposed to harsh materials, may help prevent nail injury. Nail polishes and polish removers may be avoided. White's vitamin A and D ointment, available at drugstores, or soaking the nails weekly in warm olive oil, have both produced beneficial results.

DOES YOUR HAIR REFLECT GOOD HEALTH?

Consistent brushing stimulates scalp circulation, and helps distribute natural oil to the ends of the hair. It makes it more manageable and more beautiful. Years ago, the well-groomed woman counted one hundred brush strokes daily in order to make her hair her "crowning beauty." This practice still has value. Use a natural-bristle brush, and lower your head toward the floor as you brush your hair. Use an outward wrist motion.

Healthy hair has elasticity. Norman G. Hillier stated[14] that if your hair begins to lose its elasticity, check the following possible causes, and plan to correct them. Temporary lack of elasticity may be due to:

—nervous and mental anxiety, or a grievance against someone (nervous women have more hair trouble than calm ones)
—a cold
—illness, or impending illness
—change of weather
—change of shampoo
—neglect of daily hair care
—neglect of proper nutrition

WHAT ABOUT DANDRUFF?

Mr. Hillier advised: "Do not shampoo oftener than once a week. No shampoo has ever been developed that will *help* the hair or the scalp. Too frequent shampoos can be damaging. If you were to have your suit or dress dry-cleaned once a week, it would not be long before the material lost its body, sheen and life. . . . Use witch hazel . . . between shampoos. . . . Brush the hair and scalp with a natural-bristle brush. . . . Work up the flow of blood to the scalp area so that it is pink after each brushing. Give it a good daily workout. Circulation is the best stimulation of all."

The *British Medical Journal* warned[15] about some of the antidandruff preparations. Selenium sulphide, or cinnibar (mercuric sulphide), a popular ingredient of some shampoos, has been known to cause loss of hair.

Dr. D. C. Jarvis reported[16] that one tablespoon of corn oil taken morning and evening with meals will generally cure dandruff in one to two months' time.

WHAT TYPE OF SHAMPOO IS BEST?

A study at Cornell University found[17] that shampooing created a loss of calcium, phosphorus, iron, and nitrogen from the hair. This came as a result of continued washing either with soap or commercial shampoos. When distilled water was used, the calcium loss was reduced slightly. One commercial shampoo (brand name not mentioned) prevented iron loss.

Mr. Hillier advised,[14] "The main thing for you to learn is to use the type of shampoo that will do the least damage to your hair." He gave the following tips regarding shampoo:

—Don't shampoo any oftener than absolutely necessary.
—If your scalp itches between shampoos, clean the scalp with witch hazel and small cotton balls.
—Avoid using hard water, or water from systems which have added chemicals (including chlorine). Rain water is ideal.
—Use pure castile shampoo if the water is soft. Mr. Hillier admits that it is difficult to wash out the suds in hard water.
—Use a rinse after a shampoo to undo the damage of the shampoo (vinegar for brunettes, lemon juice for blondes, are time-honored)

This may come as a surprise, but some people with beautiful hair never shampoo it at all! European women who supply hair for wigs and hair pieces in this country would not dream of using a soap shampoo. Instead, they rub oatmeal into their scalps, and comb it vigorously throughout the hair to remove dirt and oil. In India women "wash" their hair with clean potter's clay or soapnut powder. An elderly man, a woodworker, with a beautiful head of hair, boasted that he had not washed his hair for thirty years. Instead, he merely picked up a handful of sawdust now and then, rubbed it into his scalp, and brushed it out.

Mr. Hillier believes that if you brush your hair and protect it from the sun and wind, and feed it properly through good nutrition, your hair can withstand the ill effects of a shampoo because of its healthy condition. Dr. Jarvis suggested applying corn oil before the shampoo, to resist the ill effects of the shampoo. This is the method he suggested:[16] "Warm the oil and massage it thoroughly into the scalp. Wrap a towel wrung out of hot water, about the head. Repeat the hot-towel application five or six times. Now shampoo with a mild soap. The result will be hair so glossy that it shines. I have had mothers drop in at my office to show me how fine and soft their children's hair was after a corn oil shampoo; each hair seemed to stand up to be counted, shining as though it had been varnished."

It is inadvisable to rub a bar of soap on the hair. Seen through a microscope, each hair shaft resembles a small pine tree. The projections pick up and hold the soap which coats and films it.

WHAT CAUSES BALDNESS?

D. T. Quigley, M.D. stated[18] that baldness can be a deficiency disease. He cited an instance of a man who was born without any hair. Since the absence of hair was congenital, Dr. Quigley did not expect much result from treatment. He had treated many other cases of baldness by dietary methods with good results, but this was different since it was not known whether the man had any root hairs in his skin. He was given the usual instruction and diet list with supplements. "The result was that in six months he had a good growth of hair in every place where he should have it. Several years have passed and he still has normal hair and his great satisfaction is that now he can shave."

Dr. Peter Flesch of the University of Pennsylvania reported:[19] "Men get bald because the male sex hormone stimulates oil-producing glands in the skin to change the amount or quality of the oil they produce. . . . The skin oil is technically termed sebum. When painted on the skin of rabbits and mice, all the rabbits and many of the mice lose their hair in ten days."

Adelle Davis reported:[20] "When animals are put on a diet lacking inositol their hair falls out. If the vitamin is added to their diet, their hair grows in again. . . . A few years ago I became interested in the possibility that a lack of inositol might be one cause of baldness in men. For a time I recommended inositol together with other sources of B vitamins to all the bald men who consulted me. In almost every case they soon reported that their hair was no longer falling out." Blackstrap molasses and sunflower seeds are sources of inositol.

A case was reported[21] of a forty-five-year-old man who was becoming bald, but improved through dietary measures. When his intake of salt and citrus fruits was reduced, improvement was noted.

There are physical and chemical factors sometimes involved with the balding process. *Lancet* reported cases of baldness in both men and women who had used nylon hair brushes. Another study told of girls who lost hair at the temples. They wore "pony-tail" hair-dos and had pulled back their hair tightly. Another report related that Negroes have lost hair as a result of chemicals used in hair-straightening preparations.

Mr. Hillier believes that baldness is *not* a gradual process resulting from old age, but rather a lack of circulation to the scalp. He stated: "You can grow hair if you want to. To do so you must counteract the gradual loss of circulation in the scalp, keep the scalp free of scaliness, dryness and oiliness, and keep everlastingly at it. For men, the best known treatment to date is the use of Premarin Lotion *along with vigorous circulation.*" He advised daily massage until the scalp becomes pink, and/or the use of a vibrator or better yet, a small high-frequency violet-ray machine. The Premarin Lotion, available by prescription by physicians, must be used frequently.

Mr. Hillier warns against hair-growing clinics. He considers their methods futile.

WHAT ABOUT SUPERFLUOUS HAIR?

Misleading advertisements about removing superfluous facial hair by creams, sanding, and other easy methods are loaded with danger. I knew one woman who had to spend $500 on electrolysis (the only approved method) because she bought a $2.98 pumice-stone sanding gadget advertised to be "safe and would not grow hair." I know another woman who may have to spend close to $1,000 on electrolysis before she is through, as a result of shaving her face. Anything which promises to kill the hair root (except electrolysis) can permanently damage your facial skin. Legs and under-arms are a different matter.

Excessive growth of hair on body has been found to be associated with glandular disturbances. This is a case for an expert endocrinologist. Experimenting with your glands may be dangerous. The Page Foundation for Biochemical Research in St. Petersburg, Florida, had dealt extensively with problems of glandular disturbance. They have practiced a method of prescribing *minimum* dosages of hormones in regulating successfully faulty chemical imbalances. They use dosages as low as 1/2,000 grain, whereas minimal doses usually prescribed are generally 1/10th of a grain of the same material.

The public should be on guard against misleading advertisements about removing superfluous facial hair by creams, sanding, and other questionable methods. These techniques may be ineffective and dangerous. Fortunately, electrolysis which formerly was slow and painful, is now improved. The new short-wave process is quick. It can remove as many as 400 hairs in fifteen minutes without scarring or pain. In the long run, this type of treatment is also less expensive. The time needed for a permanent cleanup depends upon how long you have previously tweezed, waxed, rubbed, or "dissolved" the hair. Where abrasives have been used the skin may have become calloused; in waxing and tweezing, hair becomes deeper-seated and more stubborn. New hairs usually take three to ten weeks to grow. Other hair roots are dormant for a time before appearing. Still other hair follicles, if curved, cannot be reached at first with the needle. But short-wave electrolysis is comfortable. Eventually no return trips are necessary.

There are several companies making these short-wave, single-needle machines, and the technique comes under many different trade names. Because it is a new process it is safer to rely on carefully trained operators. Some states require proper licensing as proof of adequate training. Others do not. Treatment under a correctly trained technician is completely safe, whereas an inexperienced operator may damage skin tissue or leave scars.

Private, well-trained technicians are available, but if you live in or near a city, call a beauty salon in the larger department stores. If they have added the new short-wave single needle electrolysis service, as many such stores have, they are obligated to employ trustworthy and experienced operators. In their hands you will receive safe and efficient care.

WHAT CAUSES HAIR TO GRAY?

Apparently the cause of gray hair differs with different people. To date, these causes of gray hair have been noted:

—Stress such as worry, anxiety (or sudden shock as in the case of overnight graying)
—Poor circulation of the scalp
—Anemia
—Lack of iodine, iron, or copper in the diet
—Lack of certain B vitamins
—Deficiency of vitamin F (unsaturated fatty acids)
—Heredity
—Malnourished glands

Dr. Agnes Fay Morgan of the University of California was at a loss trying to determine why a group of laboratory rats turned gray[22] at four months (the equivalent of a ten-year-old child) on a vitamin deficient diet. Dr. Morgan knew that heredity played a part in controlling hair coloring, but the vitamin deficiency mystified her. So she autopsied the animals and discovered changes from mere swelling to a hemorrhagic, necrotic condition in the adrenal glands had taken place due to damage resulting from vitamin deficiency. To prove this, she took a second group of rats, fed them a deficient diet, and again produced gray hair. But this time she added the missing vitamins to the diet, and sure enough, the hair color very gradually returned to normal. Then she autopsied this group, and found the damaged glands had been repaired by the added vitamins.

Large amounts of liquid in the diet, including coffee or tea, have been noted as causing gray hair in animals. Dr. George R. Cowgill produced[23] a vitamin B deficiency in animals by giving them large amounts of water. University of Wisconsin scientists turned animal hair gray with large amounts of coffee. There is nothing very strange about this. B vitamins are water-soluble, and a large intake of liquids may succeed in washing out the B vitamins, which are considered helpful to hair color, out of the system.

WHAT VITAMINS HAVE BEEN FOUND HELPFUL IN RECOLORING HAIR?

The vitamin used in recoloring animal fur in Dr. Morgan's experiments was pantothenic acid. (See Chapter 15; after discussion of Royal Jelly) In another study,[9] rats deprived of pantothenic acid turned gray within two to five weeks. But when pantothenic acid was applied locally to the skin, their gray hair turned back again.

Other B vitamins have also been used successfully to restore the natural color of graying hair in animals. Para-amino-benzoic acid (PABA) and folic acid have been credited. Dr. Benjamin Sieve of Boston, gave PABA to 300 patients of both sexes, from the ages of sixteen to seventy-four, with gray or graying hair. These patients had had gray hair from two to twenty-four years. Change in hair color was noted usually within the first five weeks of treatment. A yellowish cast, giving a somewhat dirty color, appeared in persons formerly blonde; a dark dusty gray appeared in persons formerly brunette. Hair luster and health were noted as improved.

After the early yellow or dusty gray stage came a gradual return to the normal color. The time required for the change varied with the individual, apparently depending upon the physical condition of each person.

Dr. Sieve's dosage was as follows:

1 A total of 100 milligrams of PABA daily. He emphasized that it is extremely important not to give the vitamin in a single dose, but to divide it throughout the day from 2 to 6 times daily. It seems to be more effective given with meals.
2 For premature graying he suggests 50 mg. daily for the first 10 to 20 days (until the yellowish or dusty gray stage appears) then increase to 100 mg. daily in divided doses.

Although Dr. Sieve gave PABA straight, newer information has shown that it is wise to include the rest of the entire B complex in the diet along with any single B factor. (See Chapter 12, What About Vitamins?) Since PABA is a B vitamin, brewer's yeast and/or liver could be added to the diet as well.

Carlton Fredericks, Ph. D. told of a Boston physician, who, after using one of the B vitamins, recolored the hair of about three-fourths of the patients he was testing. Another physician, using another B vitamin on convicts, succeeded in recoloring the hair of the entire group. Dr. Fredericks decided to combine both vitamins into a hair-recoloring formula which is as follows:[24]

Para-amino-benzoic acid	100 mg.
Calcium Pantothenate	30 mg.
Choline	2 grams

in a natural B-complex base fortified with additional B vitamins. He has tried this formula with aging animals with success. The formula is being used at present to recolor flamingo feathers from faded pink to red. Dr. Fredericks reported success with people by the thousands. One man, employed at the same radio station where Dr. Fredericks broadcasts, was white-haired when Dr. Fredericks first met him. After taking the vitamin combination for several months, the man's hair color was gradually restored. Dr. Fredericks urges the use of the following foods in the diet, in addition to the vitamin combination: milk, oysters, shrimps, clams, sweetbreads, liver, whole wheat, whole rye, brewer's yeast, pork, and ham.

Dr. Fredericks added, "It may have taken years to gray your hair. Don't expect results in a few weeks. Six months is a more realistic period. Once the hair has grown in in its normal color, continue the diet and the vitamin formula for another month. Then stop the vitamins. If grayness appears again, it will be necessary to use the vitamin indefinitely."

Dr. Fredericks cautions that this specific high vitamin concentration has been known to cause temporary palpitations in some people, which ceases when the formula is discontinued. The formula restores hair color to many, but not to all people.

Adelle Davis reported:[20] "I have never seen the color of any person's hair restored by taking of synthetic vitamins. I have, however, seen a dozen or more cases of persons whose hair color has been remarkably restored after they began to take adequate diets rich in these vitamins."

The newest vitamin credited with restoring hair coloring is vitamin F (also known as unsaturated fatty acids). Arthur Godfrey reported it on one of his broadcasts. He was impressed because it had recolored the hair of a friend of his. Arthur Godfrey tried it himself. His co-workers testified to the change of color. A magazine reporter, after an interview, reported that Godfrey did not have a gray hair in his head. When Godfrey mentioned the source of the preparation he used[25] containing this vitamin, I learned that other people have reported similar changes with the same product.

WHICH FOODS HAVE BEEN FOUND ESPECIALLY HELPFUL IN HAIR RECOLORING?

The two foods most consistently credited with restoring hair coloring are liver and brewer's yeast. Recently I interviewed a man who told me that at one time he had been "run down." His hair had turned white, although he had not yet reached middle age. In addition, his hair was falling out so rapidly that he was threatened with baldness. An allergist physician prescribed a concoction of three ingredients: a commercial preparation of liquid vitamin B complex, fresh blood squeezed from liver, and enough alcohol to prevent spoilage. The blood was squeezed from the liver by running the liver through an old fashioned washing-machine wringer! The man was advised to drink three tablespoons of this mixture daily. He told me that this "witch's brew" was so unpleasant to taste that when a child in the family was given the choice of a dose of it or a whipping, he chose the whipping!

Nevertheless, the preparation produced excellent results for the man. His hair stopped falling out, and gradually regained its natural black coloring. The color remained as long as the man continued to take the concoction. After his health improved noticeably, he discontinued the preparation. Gradually his hair lost most of its color, although he has not been troubled by balding. My informant told me that the preparation produced visible changes within the first few weeks after taking it. This was followed by a gradual return to the normal color of his hair. He stated that the physician had similar results with other patients drinking the concoction.

Other persons have found that a continued use of blackstrap molasses was helpful in hair recoloring. This food contains many minerals. Perhaps the wisest procedure to follow is not to depend on any one food, but *all* possible foods rich in the B vitamins and minerals.

Sometimes, the improved diet prescribed for other conditions indirectly also restores original hair coloring. One woman was surprised to find her gray hair turning dark when she took liver and iron injections for menopause. When she stopped the injections, her hair turned gray again. Dr. Lester M. Morrison related[26] the story of a nineteen-year-old boy who had suffered from a bone infection since childhood. This infection had damaged his liver and other organs. He looked, talked, and felt like an old man. His hair was graying, his skin was wrinkling, and his voice was extremely feeble. Diet-plus-a-daily-vitamin-pill did not help. Dr. Morrison decided to try nutritional therapy in massive amounts. He gave the boy herculean doses of every known vitamin, plus large doses of brewer's yeast and whole wheat germ. In addition, he prescribed fresh juice of squeezed liver daily. Within two months, Dr. Morrison reported an amazing transformation. "His whole appearance became altered. His skin, eyes, and—strangely enough—his graying hair, were rapidly becoming normal again. . . . His history was truly a triumph of the wonders of nutrition."

23. What About Menopause, Prostates, and Male Potency?

"Menopause definitely may be considered an end to woman's fertility but not her virility. Not infrequently it is the door to better health." These encouraging words were written by Charles H. Lerrigo, M.D.[1]

There are many conflicting reports about menopause. There are those who declare, "It is all in your mind."

Others warn, "It is ghastly."

I would say, and I speak from personal experience, that (a) menopause differs for different women, (b) it is *not* all in your mind, (c) it need *not* be ghastly, and (d) the better your nutrition, the more likely you are to get through the menopause with ease.

PRE-MENSTRUAL TENSIONS

You may know some women whose pre-menstrual tensions regularly transform them from pleasant, likable persons into tense, irritable harpies who make life temporarily difficult for family, friends, and co-workers. There is a physical basis. Dr. Erle Henriksen, of the University of California, cited[2] the cause as hormonal changes each month several days prior to and ending with menstruation. It causes swelling as a result of stored water. This in turn apparently produces pressure on nerve centers in the brain. Other symptoms include irritability, tension, quick anger, quarrelsomeness, insomnia, headache, anxiety, depression, nervousness, vague discomforts, swelling of the feet, etc.

"It takes extremely stable husbands and children to put up with the worst sufferers," Dr. Henriksen remarked. "Some husbands just run and hide. Others ask for divorce." The worst pre-menstrual tensions are usually suffered by the more intelligent, high-strung women who can't relax.

"It's a very serious problem and completely unnecessary, because it can be prevented," declared Dr. Henriksen, as a result of a three-year study of 200 women.

During the pre-menstrual period there is a basic change in body chemistry. Sugar content of the blood drops. Energy also drops. Weight increases. Women often crave sweets, and thirst for water. Breasts may swell and become sensitive. The abdomen may feel bloated. Skin eruptions are common. Irritability may be so great that women may burst into tears at the slightest provocation.[3]

What has all this to do with menopause? Menopause involves many of the same symptoms as pre-menstrual tension, and responds to the same treatment. Instead of the glands making a transition of only one week out of four, they are adjusting off and on from one to three years.

HOW TO MINIMIZE PRE-MENSTRUAL OR MENOPAUSE TENSION

This tension can be alleviated by drugs or natural nutrients. Although drugs are available for easing your load, I believe that nutrition is a sounder approach. If you have been eating improperly for a long time, you will have to give your body time to catch up and assimilate this nutritional "fuel." Glands control your body. If they are impoverished, they must be built back to normal. The following nutrients will help:

What:	*Why:*
Vitamin A	Minimizes tension and irritability.
If you crave something sweet, *eat no sugar.* Eat protein or fruit.	Sugar gives the blood sugar a temporary boost, and then drops it lower than ever. Premenstrual irritability is often due to low blood sugar.
Vitamin B complex (brewer's yeast and liver)	Normalizes blood sugar. Helps destroy excessive hormones. Soothes nerves.
Calcium	Also soothes nerves.
Vitamin E and wheat germ	Helps circulation.
Lecithin (granules)	Feeds sex glands. Helps liver destroy excess hormones. It is a natural tranquilizer.
Vitamin C in high doses	Helps body lose water *safely.*
Protein and organ meats	Feeds the glands.

WHAT IS MENOPAUSE LIKE?

If you have lived through pre-menstrual tension, you can live through menopause. The only symptoms which are unlike pre-menstrual tension include hot flashes and menstrual variations—sometimes scanty, sometimes excessive, or sometimes not at all. Some women stop menstruating with little or no fuss, and that is that! It is not at all beyond the bounds of possibility that troublesome menopause these days parallels malnutrition. For instance, vitamin E is one of the *musts* for making menopause comfortable. Yet this is the vitamin that is removed from most commercial bread, which appears on most tables, in most homes, every day of the year throughout the country.

Here are a few statements regarding menopause, in answer to questions commonly asked. You needn't lose your attractiveness. You needn't lose your husband. Your sex life can be better than ever. Symptoms like pre-menstrual tension are not continuous. Menopause and its problems, if any, are officially over when menstruation stops. Whatever your pattern may be, help is available.

CALCIUM CAN HELP MENOPAUSE

During menopause, lack of ovarian hormones can result in severe calcium deficiency. For this reason, a larger than usual intake of calcium may help greatly. Frequently after menstruation ceases, you may notice a pseudo-menstrual cycle during that one week when you formerly suffered from pre-menstrual tension. Calcium should be increased at this time. Bone-meal tablets or powder is a source readily available, and vitamin D will help to assimilate it. Since calcium sometimes needs vitamin F also for assimilation, vegetable or fish oils can dispel leg cramp, if it occurs, quicker than calcium. Iodine (in kelp) is also necessary to help the thyroid, or master gland, perform efficiently. But the *major* mineral shortage during menopause is undeniably calcium. Adelle Davis wrote:[4] "Hot flashes, night sweats, leg cramps, irritability, nervousness and mental depression . . . can usually be overcome in a single day by giving calcium," (plus D and F for utilization).

B COMPLEX CAN HELP MENOPAUSE

Since all glands and nerves are under the strain of readjustment during menopause and act much like a jangling brass band out of tune, the B complex can restore a little peace and quiet. If the B complex is richly supplied *before* the menopause, the glands will be repaired in time for menopause, and the gland band should play in tune! Plan to eat liver as well as other organ meats which are actually glands in themselves, and more nutritious than steak or other muscle meats. Brewer's yeast is also helpful.

LECITHIN CAN HELP MENOPAUSE

Lecithin will help the liver maintain a hormone balance. It will help the body use calcium. Of course, it is useful in many other ways, as was described in Chapter 17. But these two above-mentioned features are particularly useful at the menopause.[5]

VITAMIN E CAN HELP MENOPAUSE[6]

There are many reports from other countries where vitamin E, used in natural form and in high dosages, is successful in helping menopause.[6] Since body circulation is temporarily disturbed during menopause, vitamin E has been found helpful for hot flashes,[7] and menopausal lapses of memory due to temporary lack of blood supply to the brain. Dr. N. R. Kavinoky reported[8] that from 10 to 25 milligrams of vitamin E gave thirty-seven out of ninety-two patients relief from hot flashes; sixteen relief from backache; thirty-four relief from excessive menstrual flow. When the dosage was raised to 50 and 100 mgs. of vitamin E daily, high blood pressure and muscle pains were also minimized. Dr. C. J. Christy found[9] that 10 to 30 milligrams of vitamin E daily brought such great improvement to menopausal patients that they lost their dread of menopause.

Dr. E. V. Shute, a pioneer in vitamin E therapy, stated[10] "Certainly there are no people who cannot take 50 units of vitamin E a day safely. There are virtually no people who cannot take 100 units safely, unless allergy condition exists. Fifty to a hundred years ago the average person probably ate about 35 units of vitamin E a day. Now with increasing deficiency it may take a large dose to prevent trouble."

Dr. Henry A. Gozan reported[11] that he uses a dosage which is still higher, with good results. He treated thirty-five menopausal patients with 300 mgs. of vitamin E daily, in conjunction with good nutrition. Nineteen improved or were completely relieved of painful disturbances within two to four weeks.

One menopausal friend of mine who was taking 100 units of vitamin E after every meal for her hot flashes had about decided the hot flashes were psychological. Then she went away on a short trip and forgot to take her vitamin E capsules with her. The hot flashes returned with a vengeance. She was unable to buy any natural ones in the town where she was visiting so she cut her trip short to get back to her vitamin E and blessed relief from the hot flashes.

Adelle Davis sums[4] up the effects of vitamin E better than the volumes of medical studies which I could report: "Among my personal friends whose diets have been unusually adequate, I know of no woman whose menopause has set in before the age of fifty-three to fifty-five. Furthermore I suspect aging occurs rapidly at menopause when vitamin E is undersupplied and, conversely, that women with delayed menopause stay psychologically young. One woman whose nutrition I have checked annually since 1936 is still menstruating at sixty-two years of age; she can pass for forty any day."

If you are already past this point, don't despair. Keep your glands in good repair, and they will keep your body healthy. By this time you should know that health is synonymous with youth.

DO MEN EXPERIENCE A "CHANGE OF LIFE?"

A magazine article answered the question: "Is there a change of life for men?" in this way:[12] "We believe there is—for those men who have lived without regard for good diet and other important health rules. At the time of middle age or later their vitality and nervous energy are going to run down and be depleted. The symptoms will then appear—the nervousness, irritability, uncertainty, forgetfulness, the digestive disturbances, the heart pains, the loss of sexual power.

"Is there a male change of life? We believe there is not—for those men who have lived as healthfully as possible, keeping their diet and their way of life close to nature, shunning modern chemicalized and processed foods, and supplementing their diets with natural food supplements to make up for the food elements that simply are not present in modern food. We think that 'change of life' is just another degenerative disorder that need not occur at all if early steps are taken to prevent it."

HELP FOR PROSTATES

Just as menopause difficulties may be helped, there are also aids for prostate conditions. James Pirie Hart, B.Sc. and William Le Grande Cooper, M.D. reported[13] nineteen prostate cases "cleared" with vitamin F. Here were the results, which should be of interest, sooner or later, to every man:

"I. All cases showed a diminution of residual urine; in 12 of the 19 cases there was no residual urine at the end of the treatment.

2. Nocturia (getting up at night to urinate) was eliminated in 13 of the 19 cases showing this symptom.

3. A decrease of fatigue and leg pains and an increase in sexual libido was noted in all patients.

4. Cystitis (inflammation of the bladder) cleared up in relation to the decrease in residual urine.

5. Dribbling was eliminated in 18 out of 19 cases.

6. Force of stream was increased.

7. In all cases the size of the prostate was rapidly reduced.

Confirmation was by palpation. Every patient exhibited enthusiasm over the improvement in physical well being resulting from treatment."

The daily dosage used was "6 five-grain tablets of vitamin F complex,[14] a concentrate containing linoleic, linolenic, and arachidonic acids, each tablet having a total of 10 milligrams of these unsaturated fatty acids. The dosage was administered for a period of three days to produce systemic saturation; it was then reduced to four tablets daily for several weeks; finally a maintenance dose of one to two tablets was administered daily."

Vitamin F has been used successfully not only for prostate trouble, but also in cases of high cholesterol and arthritis. A pattern indeed seems to emerge in which many of these "aging" diseases, seemingly without any connection, are related after all with vitamin F deficiency as the common denominator. Vitamin F may prove to be a vital key to many degenerative diseases.

Three foreign researchers[15] reported that pumpkin seeds contain a hormone material which aids prostates. One pointed out that in countries where pumpkin seeds are eaten in great amounts throughout life, there is almost no incidence of prostate disorders. These observations were confirmed by two other researchers. One stated that the androgen-hormonal influence of pumpkin seeds helps urination and produces "regenerative, invigorating, and vitalizing influences."[16]

"Anyone who has studied this influence among peasant people has been again and again astonished over the effects of this plant in putting off the advent of old age. My own personal observations in the course of the last eight years, however, have been decisive for me. At my own age of seventy years, I am well able to be satisfied with the condition of my own prostate on the basis of daily ingestion of pumpkin seeds, and that of my health in general."[17]

For sources of raw, unsalted, fresh pumpkin seeds, see Appendix, Chapter 6, #11). Roasting or frying has been found to destroy many elements in seeds and nuts.

Another treatment which proved beneficial to prostate sufferers was discovered[18] accidentally as a result of treating allergies. The therapy was a mixture of three amino acids (found in protein such as brewer's yeast, etc.) glycine, alanine and glutamic acid. Two capsules of this mixture was administered after each meal for two weeks, followed by one capsule after each meal, for a period of three months.[19]

WHAT ABOUT MALE POTENCY?

Does age affect potency? Not necessarily. Some men past eighty are known to be potent. It is rather a question of being a "whole person"—a combination of physical and mental health. Dr. Frank S. Caprio wrote:[20] "Laborers who work outdoors, eat plenty of good food and get an adequate amount of sleep are more potent, if only because they are subject to less mental strain than are people who work indoors."

WHAT ARE FACTORS IN MALE IMPOTENCY?

Dr. Caprio lists the following:

—fatigue
—debilitating diseases
—glandular deficiencies
—ailments of the prostate gland
—infectious diseases, including venereal diseases
—inflammatory vaginal conditions or vaginal spasms in women causing pain in the male
—psychological factors: This is the cause of about 90% of cases of impotency. These may be due to bashfulness, ignorance, fear of failure, faulty attitudes toward sex, jealousy, self-pity, anger or desire to punish a wife for one reason or another.

Job fatigue can be a temporary cause of impotency. Wives have complained that men, exhausted by their day's work, lose interest in love. But more noteworthy is the fact, according to Dr. Abram Kardiner,[21] that men seem to confuse money with manliness. If they don't make enough, it may crush their feeling of manliness. If they have to work hard to get it, they feel it vindicates them if they are poor lovers. Women intensify this false set of values, when they admit to marriage counselors that the successful man is often more attractive physically.

In contrast to the man who uses financial success as a mark of masculinity, is the man who is married to his job, works unceasingly to avoid social involvement with men, but especially women, with whom he feels uncomfortable.

Another type of husband takes out his job anxieties on his marriage. One man became impotent because he unconsciously blamed his wife for his job difficulties. When he changed his line of work, his business and sex problems disappeared.

"It's easy to mistake the problem in one area of life for troubles in another," wrote Dr. Alexander Wolf.[22] "If you are experiencing difficulty solving vocational or marital problems, don't fall into the trap of confusing the real source of the trouble. Seek expert help in your community. Unsnarling emotional difficulties is a complex problem which few people are able to do alone."

Meanwhile, don't sacrifice your love life for your job. Take time out for good old-fashioned love. It deserves all the time you can give it. This suggestion, of course, is meant for husbands. Since wives are also involved in this problem, additional reading may be helpful.[23]

WHAT EFFECT DO DRUGS HAVE ON IMPOTENCY?

Barbiturates and bromides have an inhibiting influence. Hormone injections have not produced encouraging results.

WHAT NUTRITIONAL AIDS HELP?

Dr. Evan Shute reported[24] an experiment with rats. The rats were given a diet completely devoid of vitamin E. A gradual atrophy of the generative organs resulted eventually in sterility. But, before complete atrophy of the male organ took place, vitamin E was added again to the diet. It succeeded in restoring some sperm productivity. Dr. Shute used vitamin E for male as well as female human reproductive disturbances.

Wheat-germ oil has been used[25] successfully with rats in returning disturbed reproductive glands to normal. But when other vegetable oils, rancid wheat-germ oil, or synthetic vitamin E were administered in an identical manner, they did not achieve the same results.

Pantothenic acid (a B vitamin, known as the "youth vitamin," discussed in connection with Royal Jelly in Chapter 15) has been found[26] to improve the condition of testes in rats. It also increased the life span of another group of animals nearly 20 per cent.

Nor have the favorable results of improved nutrition upon impotency been limited to animal studies. Dr. E. Vincent Askey, President-elect of the American Medical Association, expressed the opinion[27] that it is entirely possible within the future that couples ninety years old may still bear children.

Leland Kordel avowed[28] that a man can be virile at any age. He stated that hundreds of men with "so-called" impotency have responded to diets rich in the following nurients:

1 *Protein* to keep the thyroid well-nourished and from slowing down, since there is a close link between the thyroid and sex glands. He reported a study in which sexually normal men were fed extremely low amounts of protein. They lost all interest in the opposite sex, even when they were exposed to girls with alluring curves in bathing suits.
2 *Vitamin A* because it keeps the mucous membrane in good condition and thus helps the functioning of the testes.
3 *Vitamin B Complex.* B1 helps the pituary gland to keep mating desire normal. Choline, another B vitamin, according to Dr. Gerson R. Biskind of the University of California, helps the liver to manufacture hormones.
4 *Vitamin D,* found in cod-liver oil and other fatty foods, may explain the "old wives' tale" that oysters and eggs help virility.

Kordel mentioned that the New Jersey Experiment Station found that malnutrition contributed to impotency of

600 workers. Their main deficiencies included vitamins B and C, and calcium.

Dr. A. Narpozzi of Italy found vitamins A and E, as well as B complex, helpful in restoring men to normal who had suffered from a deficiency of seminal fluid.

The most exciting news, however is the effect of lecithin. R. W. Bernard, Ph.D., wrote:[29] "An examination of the chemical composition of the semen and the central nervous system shows them to have a remarkable similarity in their constitution—especially by reason of the fact that both contain larger quantities of *Lipoids,* (including Lecithin, Cholestrin, and Phosphorus) than almost all other parts of the body. The group of fats known as phospholipids are major constituents of the semen and the brain . . . .

"Similarly it is rational to suppose that seminal discharges can cause withdrawal of lecithin and cholesteral from the blood since the semen is remarkably rich in both these substances, and its discharge is followed by the manufacture, by the sex glands, of new secretions whose raw materials are taken from the blood. . . . This explains why German physicians are using lecithin tablets for the treatment of neurasthenia caused by sexual debility. . . .

"According to Sajous, the great biochemist and endocrinologist, lecithin is a 'conspicuous component of the *brain, nerves . . . and the semen*'. . . . These considerations make it evident that withdrawal . . . through seminal discharges . . . must deprive the central nervous system of substances which are of the utmost importance for its nutrition. . . . In other words the organism needs . . . more incoming energy than appears to leave the body."

These are words of great significance. They point to the dangers inherent in any recommendation which avoids cholesterol in the diet. But they also point the way of help rather than harm from cholesterol, provided it is properly emulsified by its natural companion, lecithin. Since there seems to be enough cholesterol already in the American diet, if lecithin is added, restoration may be possible to the male body of what has been lost through seminal fluid. Since the brain and nervous system are also involved in this expenditure, perhaps this food family will turn out to be the white hope not only of coronary patients but in the prevention of senility. Henceforth, every wife should dutifully serve lecithin granules to her husband regularly, as well as vitamin E and B complex, preferably in food form. All of these nutrients will help him to maintain health, youth, and life!

24. How Can You Relieve Stress?

Stress is a part of life. It is a natural by-product of activity. It is not necessarily bad. It is also the spice of life, for *any* emotion or activity causes stress. The same stress that makes one person ill can be an invigorating experience for another. Although we cannot avoid stress, we can learn how to keep its side effects to a minimum. These are some of the ideas presented by Dr. Hans Selye,[1] world authority on stress. Nature has provided our body with a self-protecting mechanism: hormones. "To understand the mechanism of stress gives physicians a new approach to the treatment of illness; it also gives us all a new way of life, a new philosophy to guide our actions in conformity with natural laws," wrote Dr. Selye.

Dr. Selye did extensive experimental work with rats which had been subjected to stress. The Charles Pfizer Company, manufacturers of pharmaceuticals, made a movie of the experiments, in color. The rats were subjected to many kinds of stress which we, as humans, face every day: too much heat, cold, frustration, hunger, fatigue, unpleasant situations. In each instance, there was a control group not subjected to these stresses. When both groups were autopsied, the comparisons were startling. The adrenals and thymus glands, which help control the body, as well as the stomach linings of the rats exposed to undue stress, were almost unrecognizable. These organs were gorged with blood, misshapen, enlarged, and diseased. In the control group, the same organs were smooth and healthy. The changes in the rats exposed to stress had not been caused by bacteria, virus, poison, or disease, but by emotions which had produced similar ravaging effects.

Dr. Selye believes that stress is the most common cause of disease. This is understandable, as we begin to examine the variety of daily stresses to which we are exposed. If the alarm goes off late, if we miss a bus, if the mortgage comes due, if we have an argument with someone, if we overwork and become overtired, if we hear bad news, if we cut our finger, if the car battery goes dead, if a woman gets a run in her stocking—all of these situations are ones that produce stress.

When organs are disturbed in their functions by stress, they cannot keep the body running smoothly. Dr. Selye says that stress can upset the glandular system and lead to arthritis, blood pressure, diabetes, coronaries, ulcers, allergies, kidney trouble, and a host of other conditions. Yet the owner rarely suspects the cause. At first, the body can bounce back. But if pressured too far, and too long, irreparable damage may occur. Dr. Selye believes that the degenerative or "aging" disease may also result from the cumulative effects of stress.

Poor nutrition is in itself a stress. Witness the poorly fed gray-haired rats of Dr. Agnes Fay Morgan's experiments (see Chapter 22) who were found to have damaged glands. When nutrition was corrected to include necessary nutrients, the glands, though revealing previous damage, showed that they had been repaired by proper nutrients.

These are some of the lessons which Dr. Selye believes have been learned through a study of stress. The body can meet the most diverse aggressions with the same adaptive-defensive mechanism. We can analyze this mechanism, and identify its parts in measurable physical and chemical terms, such as changes in the structure of organs or in the production of certain hormones. We can combat diseases by strengthening the body's own defenses against stress. "Knowledge of stress can teach us something about the way to conduct our personal lives in keeping with natural law. Life is a continuous series of adaptations to our surroundings, and as far as we know, our reserve of adaptation energy is an inherited finite amount, which cannot be regenerated. On the other hand, I am sure we could still enormously lengthen the average human life-span of living in better harmony with natural laws." Since is it not life's problems but *how we meet them* that is important, this should be considered next.

HOW CAN YOU DEAL WITH YOUR STRESSES?

1. *Talk out your problems.* Don't sit and smolder. Ventilate. First, do some straight thinking alone. Try some honest self-analysis to see if the cause lies deeply hidden within yourself. Don't be too quick to blame others. Living with people is a two-way street. Try to solve problems intelligently, not emotionally. Simplify your living to eliminate unnecessary stresses.

But if you are still going around in circles, like a broken record, talk your problem over with someone who is sympathetic but objective. If your problem is physical, consult your physician. Otherwise, confide your worry to some level-headed person you can trust: your husband or wife, father or mother, a good friend, a teacher, a school counselor, your clergyman, or a qualified counsel in your community.[2] Talking things out may help to relieve your stress, see your anxiety in a clearer light, and see what you can do to solve it.

Dr. Ira Altshuler of Detroit said that the average man goes to his grave prematurely because he keeps his big mouth shut when he should be blowing off steam. His wife outlasts him because she chews the rag over the telephone or the back fence. If her tongue didn't wag, said Dr. Altshuler, her blood pressure might soar.

2. *Escape for a while.* Dr. Smiley Blanton, psychiatrist, admitted that although work solves many problems, there is also benefit from *not* working now and then. He said, "Americans work too hard (even) at leisure. . . . Europeans and Orientals regard us with astonishment. They say we have not mastered the art of pausing. They are right."

In the business world, stress is often the result of stiff competition. A man, or career woman, feels if one lets up, one will lose out. Such a person drives himself relentlessly. When his mind or body tires, he may reach out for a crutch such as tobacco, alcohol, a "pep pill" or a tranquilizer to bring relief or to keep going. This is, of course, merely aggravating the situation. It is not just the hours spent in the office either. It is the mental take-home work that bring no surcease. These people, the executive type, are the ones who usually die early.

Dr. Sara M. Jordan remarked, "It is wonderful to see how the greatest stress can be endured by the human body if periods of relaxation are interspersed at enough intervals."

There are various methods of escaping for a while. You can spend time alone, even if you must get up in the wee hours of the morning in order to do it. Take two vacations a year instead of one. Take a little vacation every weekend.

Stephen S. Price[3] gave several quick helps for when you are feeling taut and tense. Pretend you are going down in an elevator. Or drop your shoulders. A tense person has tense shoulders. Mr. Price told the story of a small boy who suggested an easy way of getting a too-tall truck through a tunnel, when no one else was successful. Said the boy, "Let the air out of its tires." This goes for people, too. Let the air out of *your* tires. Work and relaxation go hand in hand.

These will be comforting words for homemakers. Professor Ethyl R. Grady, work simplification expert, reported[14] that it's good for housewives to rest now and then. They need not feel guilty when they take time out to read the morning paper, chat with neighbors, or lie down for a few minutes. Ten minutes of rest each hour can help accomplish more than working the full hour.

Virginia Forsythe wrote:[5] "My idea of a psychological vacation is anything I do just for fun. It can last for fifteen minutes or an hour or two . . . and can range from playing the piano to walking in the rain. . . . Usually it is a complete contrast from the required daily round."

3. *Work off your anger.* If you feel yourself becoming angry, pitch into some physical activity like gardening, cooking, cleaning out the house, painting, carpentry, etc. Or work it out in some physical sport. Or take a long walk. Working the anger out of your system will leave you better prepared to handle the stress.

Dr. E. H. Michael of the University of Southern California advised: "Run around the block if you are angry, and work off steam. It may be a life saver for those who lose their tempers easily." Don't save exercise for emergency purposes, suggested Dr. Michael. Exercise is necessary to life, and should be engaged in. It should be strenuous but not tiring, and it should work the whole body. He especially recommended walking and swimming.

Dr. Harvey E. Billig, Jr. said that we should follow the example of the family cat. We should stretch often. People sometimes tighten up because they don't move much. The cat, on the other hand, gets up, stretches periodically, and goes back to sleep again.

A warm, lazy bath, a heat lamp, massage, or deep-breathing exercises are good relaxers. Music, the ancient tranquilizer, may bring response when nothing else will, as it "soothes the savage breast of man."

4. *Give in occasionally.* If you find yourself getting into frequent quarrels and feeling obstinate and defiant, remember that this is not a sign of maturity. Stand your ground when you know you are right, but do it calmly. Also make allowance for the possibility that you might be wrong. Even when you are dead right, it is easier for your system to give in once in a while. If you yield, you'll usually find that others will also yield. This results in a relief of stress, the achievement of a practical solution, and a feeling of satisfaction.

5. *Side-step minor irritations.* Cultivate a sense of humor. It will insulate you against petty trivia. If someone snaps at you, you needn't snap back. Be mature. Take the long view.

6. *Harness stress to help you rather than harm you.* Turn your energies into something you enjoy doing. Recreation is an essential for good physical and mental health. Set a definite time to engage in recreation. A hobby may engage you with pleasure, and make you forget for the moment the distasteful task that still lies ahead.

7. *Do something for others.* If you feel yourself worrying about *yourself* all the time, try being of service to others. You'll discover that this will take the stress off your own worries, and also give you a fine feeling of having done something useful.

8. *If you can't change people or conditions (or yourself) learn to accept them.* Sometimes the very act of facing a problem dissolves it. Flexibility and tolerance are wonderful virtues. And count your blessings, not your woes. Many persons are worse off than you.

9. *Take one thing at a time.* For people suffering from stress, an ordinary work load may sometimes seem unbearable. The load looks so great that it becomes painful to tackle any part of it, even the things that most need to

be done. Remember that this is a temporary condition, and that you *can* work your way out of it. Select only a few of the most urgent tasks, and do them one at a time. Set aside all the rest for the time being. Once you dispose of the urgent ones, you will realize that the rest are not insurmountable. If you feel that you can't set anything aside to tackle things this sensible way, reflect on the following thought: maybe you are overestimating the importance of the things you do—or, your own importance?

10. *Put it off until tomorrow.* Sometimes if a problem seems overwhelming, a night's rest will reduce it to size. South of the border, the philosophy of *mañana* works well to reduce stress.

11. *Shun the "superman" urge.* Some people expect too much from themselves. They are in a constant state of stress because they are worried that they are not achieving as much as they should. Perfectionism is an open invitation to failure. No one can be perfect in everything. Decide what *you* do well, and put your major efforts into these. They are apt to be the things you enjoy doing, and therefore these are the things which will give you the most satisfaction. For the things you cannot do so well, give them the best of your effort and ability, but don't chide yourself for achievement which is less than perfect.

12. *Go easy with your criticism.* Some people expect too much of others, and then feel stress when another person does not measure up. Instead of being critical, search out the other person's good points. This will give both of you satisfaction, and will help you reduce your stress.

3. *Give the other fellow a break.* When people are under stress, they often feel that they have to "get there first," no matter how trivial the goal is. Competition is contagious. But so is co-operation. When you give the other fellow a break, you very often make things easier for yourself. If the other fellow no longer feels that you are a threat to him, he stops being a threat to you.

14. *Make yourself available.* Many people have a feeling they are being "left out," slighted, neglected, or rejected. Often we just imagine that others feel this way about us, when in reality they are eager for us to make the first move.

15. *Have a harmless "whipping boy."* Dr. Menninger of the Menninger Clinic suggested that if you are stuck with

someone who is more than you can tolerate, get a punching bag or a balloon. Paint a face on it, and privately give it the name of your tormentor. Every time you pass it, give it a shove in the face. By expressing, rather than damming up resentment, cases of arthritis, ulcers, and stomach troubles have been known to disappear. We often hear someone say, "She makes me sick." Dr. Selye says that this resentment may become serious stress, and may actually gnaw away at our vitals, and cause malfunctioning of an organ or a gland.

CAN NUTRITION HELP RELIEVE STRESS?

Nutrition can play an important role. When you are under stress, the vitamin C stored in your adrenal gland may be destroyed in seconds. Consequently, we can fall prey to diseases due to vitamin C deficiency, such as colds, infections, arthritis, etc. If you have experienced a real shock or deep stress, additional intake of vitamin C is advisable.

The Food and Nutrition Board of the National Research Council in Washington D.C. has suggested a special Stress Vitamin Formula, including vitamins B complex and C. It is sold commercially.[5] However, in view of current findings regarding vitamin interrelationships (see Chapter 12) it might be wiser to combine the whole B complex such as brewer's yeast, or liver, plus Vitamin C, in the form of bioflavonoids. One nutritionist says[7] that when she anticipates a hard day with extra stress ahead, she begins with a generous helping of liver for breakfast.

Bernard Jensen advised:[8] "Eat right. You cannot have sweet thoughts on a sour stomach." Dr. W. D. Currier[9] told of a patient who volunteered himself for experiments to discover if nutrition were related to emotional disturbances and "nerves." At the beginning, the young man was a "pleasant, cheerful active young man, full of initiative, cooperative and sociable, high altruistic, sensitive to the world's social problems and eager to play his part in a war-torn world."

After twenty weeks of semi-starvation he was "nothing but a shadow of his former self; weak and edematous, lacking physical endurance and mental initiative, grouchy and self-centered, without interest in female companionship, a childish slave of food, primarily concerned with individual security rather than larger issues. His hearing became disturbed, he lost his self-confidence, his interest in personal appearance and hygiene." He became aggressive, a nail biter, a fuzzy thinker and speaker and was mentally depressed.

His rehabilitation treatment consisted only of correct nutrition. After thirty-three weeks of proper eating his normal personality returned except for a slightly less cheerful outlook, and a greater concern than before over health matters. The experiment left its mark on the young man, even though he knowingly and willingly undertook it.

Dr. Currier made the following significant comment:[9] "How much more devastating must be the impact of long-continued nutritional deficiency on people who are unaware of the cause of their troubles and unable to account for their mental and emotional deterioration."

There are certain foods which might be considered as "natural tranquilizers" to relieve stress. Vitamin E has been found useful. Lecithin, especially in granular form, quiets the brain and nerves. The B complex, as in brewer's yeast, is also good for the nerves. It takes some time for the value of these foods to be utilized in the body. Best results come not from one, but from *all* nutrients mentioned. Meanwhile, quicker action can be obtained by calcium, a painkiller and a nerve soother.

WHAT ABOUT DRUG TRANQUILIZERS?

As early as 1957, 137,000,000 prescriptions were written for tranquilizers in America. Since then, the number has increased by millions each year. Nor does this take into account the sleeping pills, nor other palliatives sold without prescription.

Dr. Tom Spies admitted[10] that tranquilizers may have helped greatly in mental illness, but in mental illness there is a loss of necessary body nutrients which must be restored. If tranquilizers seem necessary, they should not replace vitamins, nor should vitamins replace tranquilizers.

Rather they should go hand in hand until recovery is achieved.

If mental illness does not exist, tranquilizers may not be justified. Physicians have warned, at Congressional Hearings on Drugs, that tranquilizers can be dangerous. Dr. Hans Popper, pathologist at Mount Sinai Hospital in New York City, testified[11] that 1 to 2 per cent of patients taking chlorpromazine (a tranquilizer) developed jaundice. He predicted that the problem would grow more serious with expanding use of such drugs. Although many of the cases are mild, he said, the result has been fatal in some instances. Dr. Popper said that the difficulty of the problem was heightened because "most of the recently developed drugs do not produce the same changes in experimental animals." Regarding iproniazid ("pep" pills), although the incidence of liver disease is low, Dr. Popper said it is "particularly tragic since the very few patients who develop jaundice after the administration (of this drug) are often severely ill and about 20 per cent die."

At a clinical meeting of the American Medical Association, Dr. Jesse D. Rising of the University of Kansas School of Medicine, stated[12] that alkoloids of rauwolfia serpentina, which had wide acceptance previously as tranquilizers, are generally believed to cause depression, indigestion, diarrhea, and peptic ulcer. Among the tranquilizers, phenothiazine derivatives probably have resulted in more ailments than all the others combined. They have precipitated Parkinsonism, a disease of the nervous system marked by muscular rigidity, liver damage, jaundice, and epileptic seizures, he said.

According to Dr. Philip Polatin,[13] tranquilizers merely mask neurotic anxiety. They do not cure, and may merely cause the sufferer to put off finding the cause of his symptoms. They do not heal any condition. In schizophrenic or mentally ill people, tranquilizers can improve both motor and psychological co-ordination. But in the non-mentally ill, the opposite effect may occur. Side effects include depression, drowsiness, tremors, incoordination, vomiting, and various allergic reactions. A certain percentage develop jaundice.

The Addiction Research Center of the National Institute of Mental Health reported [14] that continued use of one commercial tranquilizer (trade name given) was found capable of causing an addiction and irritability to the nervous system. Convulsions were found to occur in some cases when the drug was withdrawn. A report[15] was made of a clinical study of forty-seven patients given the same tranquilizer for forty days. Forty-four of the patients exhibited withdrawal symptoms. Eight patients had hallucinations and reactions resembling delirium tremens. Three others developed epileptic seizures.

In the case of a "pep" pill, a coroner's jury ruled[16] that a patient died as the result of 150 mg. of iproniazid phosphate a day. This amount is considered a standard dose by physicians and the drug manufacturers. The coroner, H. W. Turkel, stated that the efforts of the drug company and the Food and Drug Administration to inform the public of the dangers of the drug were "utterly feeble and obviously inadequate."

The United States Army has issued orders grounding army pilots for four weeks after taking tranquilizers. Captain Robert B. Muffly, of the Army Medical Corps, who issued the order, stated: "This entire group of medicine interferes with the individual's ability to react, coordinate, to use good judgment, and to remember. There is a reduction of the normal protective anxieties as well as those of an undesirable nature."

Sara M. Jordan, M.D. said: "Tranquilizers do bring about changes in the brain. . . . When they are not needed, why interfere with the brain, the most delicate and valuable structure in our possession? If nerves can be managed in a natural way . . . why resort to chemistry?"

The best type of tranquilizer,[17] said Dr. Benjamin Boshes, is love. One nurse in World War II, related Dr. Boshes, refused to give drugs to her patients. Instead, "she would tighten a blanket, fluff up a pillow, tuck a shoulder in, lean over and give another man a light kiss on his cheek, and in 15 minutes the 30 or 40 men would be sound asleep. This tranquilizing of people by a loved one or by some symbol is as old as man."

The Gallup Poll of senior citizens on their "secrets of longevity" reported:[18] "They were not upset by little things. They are and have been—complacent, serene, unruffled and self-possessed. There are no psychosomatic ailments here. Along with their heredity, light eating habits, and physical activity, their tranquility is one of the secrets of their longevity." The oldsters themselves reported, in their own estimation, that they were:

cheerful
easy-going
hard to provoke
took things as they came
were always in the same mood
had feelings that were hard to hurt
usually were satisfied with life

A two-year study in a district of the Baltic Province by Professor Amon, a gerontologist, observed 188 people from eighty-five years upward; 80 per cent were moderate eaters, all had had plenty of physical exercise, and nearly all were sound sleepers. The attitude of these people toward life was positive. They accepted life as they found it, and maintained a healthy mental attitude together with harmonious human relationships.

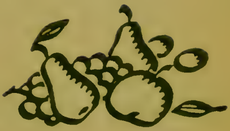
Have you read that wonderful article, "Your Mind Can Make You Well"?[19] This article was reprinted at the request of the President of the American Medical Association. And rightly so. It carries help for all.

STRESS AND INSOMNIA

Dr. Selye relates stress to insomnia. He says that the stress of a hard day's work can either make you sleep soundly or produce insomnia. It depends on the work. A stressful activity which has come to a definite stop prepares you for rest and sleep. One which sets up self-maintaining tensions keeps you awake. By the time you retire it is too late. It is during the whole day that you must prepare. Dr. Selye advises not to allow yourself to be carried away and keyed up more than is necessary to acquire the momentum for the best performance of what you want to do. If you get keyed up too much, especially during the later hours of the day, your stress reaction may carry over into the night. Dr. Selye reminds us that the hormones produced during acute stress are meant to alarm, and key you up for peak accomplishments. They tend to combat sleep and promote alertness during short periods of exertion. They are not meant to be used all day long. If too much of these hormones circulate in your blood, they will keep you awake. Insomnia has a chemical basis. At night, in bed, it is too late to prevent it from developing. Dr. Selye suggests trying not to overwork any one part of the body or mind disproportionately by repeating the same actions to exhaustion. Be especially careful, he warns, to avoid the senseless repetition of the same task when you are already exhausted. The same work might be done much more easily after a night's sleep, or even after a few hours of doing something else. If you get yourself in a rut you may not be able to stop, and mentally you will keep on repeating your routine through the night.

We must think not only of the total amount of stress in the body, but also of its proportionate distribution through various parts. If there is proportionately too much stress in any one part, you need diversion. If there is too much stress in the body as a whole, you need rest.

PART THREE



25. The Art of Loving

There is one trait common to everyone in the world. *Everyone wants to be loved.* The baby wants to be loved; the growing child needs it; the teen-ager must have it or develop a feeling of serious inadequacy; the young adult, married or unmarried, feels as if he is only half a person without it; and the aging or elderly person, in order not to feel excluded or useless, needs it most of all. Love doesn't cost any money. Love is within reach of everyone. There is one guaranteed way of getting it: by giving it. Give it, and you still have it.

In a study with animals, white mice were picked up daily for a few minutes, and stroked with loving affection. These mice outgrew others that had not received this attention.

Hospitals have found that children recover from illness or surgery faster if nurses are instructed to administer daily doses of "T.L.C." (tender loving care).

A friend of mine raises Siamese and Burmese cats. When a litter of kittens is born, she picks up each kitten daily, strokes it and speaks loving and reassuring words to it. The kittens develop into affectionate, wonderful pets as they grow older. This is attested to by every owner who has been fortunate enough to receive one. There has been only one exception. One kitten left its original climate of love and was placed in a home of indifference. A small child was allowed to mistreat it. Within a matter of weeks, this kitten had acquired a vicious, snarling disposition. It had learned to respond in kind to abuse, rather than to love.

Dr. Smiley Blanton wrote:[1] "Babies, even more than most of us, literally depend upon love for their survival. I have seen small infants, deprived of maternal coddling and love, go into convulsions for which no physical cause was present. The convulsions were a protest, the most violent protest the child could make, against the deprivation it was suffering.

"I knew a woman once who had done what seemed to be a spectacular job of raising a large family of happy, enthusiastic, outgoing children. Someone asked her what her formula was.

" 'Well,' she said, 'I guess I just pour the love into 'em until it runs out.' "

There are many ways of expressing love. But the basic need, the deepest desire of anyone of any age, is to bask in the warmth of love of mankind. Without this love gratification, as you will see in the next chapter, we can perish. Not only do we crave love, but within each of us is a potential source of love. Call it spiritual love, or love of God, or what you will. That spark of love is not meant for keeping but for giving. In order to warm, to lighten the load, and to satisfy the burning need of every individual you meet, you have the priceless gift to bestow. If love is given, sooner or later it is reflected back to the giver. Everyone loves those who love. They can't help themselves. Dorothy Dix once wrote: "The only really successful marriages are mutual admiration societies."

I had accumulated a number of rules I had planned to report to you on how to get along with others. As I began to examine them, each one of them was reduced to ashes under the impact of the searchlight of love. Those people who won't "give an inch" but will offer only "as much love as you give me" aren't really giving. They are keeping. It is this act of holding all or some love back that leads to stress with other people.

K. C. Ingram[2] summed it up: "The point is to treat people well, always. As a habit. Don't press for the reward. Special rewards come unexpectedly, from doing good deeds secretly. The man who doesn't care who gets the credit does a lot of good for other people—and himself. If you are at any time unhappy or bored, try doing something to help somebody. 'Cast thy bread upon the waters, for thou shalt find it after many days.' "

Here is a true example to illustrate the principle: One Christmas Eve, George Sandlin, a young man in Old Fort, North Carolina, saw a small colored boy gazing wistfully into a toy-shop window. George stopped to chat with him. "What is Santa going to bring you tomorrow?" he asked.

"Santa don't come to poor folks' houses," the little boy said sadly.

"If he did come, what would you like him to bring you?" Sandlin persisted.

"That little red wagon," said the little boy, pointing a stubby finger.

"Well," smiled Sandlin, "I got a letter from Santa this morning and he told me to get you that very wagon."

"He did?" The little boy's eyes opened wide with amazement.

And soon he was trudging down the street toward home proudly pulling the little red wagon behind him.

Many years later when Sandlin reached his seventies, he was convalescing from an illness. A colored man learning about the convalescence appeared at his door and offered his services. Sandlin hired him on the spot, grateful for extra help. Until Sandlin was strong again, the man anticipated his every need, ran errands, carried wood, climbed stairs—anything which might fatigue a man who must conserve his precious energy. His efforts went far beyond the line of duty or the pay he received.

Finally Sandlin's curiosity got the better of him. "Jim," he said one day, "why are you so anxious to help me?"

Jim looked a little incredulous. "Don't you know?" he asked.

"No," said Sandlin, "I don't."

Jim looked at Sandlin searchingly. And there was mixed gratitude and affection in his expression as he asked gently, "Don't you remember the little red wagon?"

Mr. Ingram also advised: "We will save ourselves many disappointments if we do not expect people to be reasonable. One way to learn to like people is to cultivate the habit of telling them the good things we may hear about them. It is quite as blessed to give as to receive a good word. . . . People are full of human fallibilities—every one of us. If we are tolerant of other people's mistakes, they will overlook our mistakes. People are also full of admirable qualities. If we look for such qualities in others, people will look for and find good qualities in us. To keep life worth living, we must keep faith in human nature."

Psychologists say that some people criticize or vent their spleen on others because they do not like themselves.

They recognize in others the traits that they dislike in themselves. That is why they are so quick to spot them. Others criticize people because they do not understand their problems or their motives. There is a saying: "Before criticizing another Indian, walk in his moccasins for two weeks."

People need, not criticism, but to be accepted and appreciated. Dr. Pitirim A. Sorokin said[3] that when other conditions are equal, those who love and are loved genuinely will live longer than those whose love relationship is frustrated. Dr. Blanton believes this too, as evidenced by the title of his book, *Love or Perish*. When we do appreciate people, we develop them, like flowers, into still better specimens.

If love seems like too much to bestow on some people, we can at least try some appreciation. People are starved for appreciation, too. Dr. Blanton related[1] a story about an American mining expert inspecting a Welsh coal mine in which some coal falling on a tunnel roof resulted in an emergency repair.

"The repairman turned out to be a rugged old Scotsman in his late fifties. His men brought beams and boards and quickly repaired the roof. When they were finished, the American said to the Scotsman, 'That was a fine job you just did, quick and efficient. You have every right to be proud of it.'

"The old Scotsman looked at him for a long time, his face working as if he wanted to cry. Finally he said, 'Those are the first words of praise I've had in my work in over thirty years in this place!' "

Loving can make plain people beautiful. One of the plainest girls in history lived during the Renaissance. Even so, she was considered beautiful by many painters. Her name was Simonetta Vespucci. Although she was frail and tubercular, Lorenzo the Magnificent was reported to declare: "Her manners were so sweet and attractive that she gave everybody who was familiar with her the absolute certainty that she loved him. It seemed impossible that she was loved by so many men without any jealousy and praised by so many women without envy."

In order to love people more, you will need to understand them better. In order to understand, you will need to listen. So few people really listen. They half-listen, or listen impatiently, biding their time for the other person to stop so that they may begin talking.

One reason why it is so hard to listen, according to Dr. Ralph G. Nichols and Leonard A. Stevens,[4] is that we think faster than we can talk. While the other person is talking at the rate of about 125 words per minute, we are thinking at the rate of about 400 words per minute. Even so, a good listener *trains* himself to concentrate, and to ignore distractions. It is rude and disquieting to the speaker if you look elsewhere, get up to shut a door, turn off a radio, move toward or away from him, or interrupt to body at an hourly rate. She received numerous requests.

People talk not meaning to bore, but in order to communicate. Words are often inadequate to express feelings and troubled spirits. The wise listener will learn to listen with a "third ear" to catch the subtle overtones of meanings beyond the words themselves. We must be sensitive to unspoken feelings. In this way we can apply the balm of understanding.

One of the most delightful listeners among my acquaintances is a woman who, when someone starts to talk, settles back comfortably in her chair, her face assuming an expression which seems to say, "Now this is going to be interesting." People feel great rapport with her.

One person, recognizing the universal need for people to have a sympathetic listener, capitalized on it. She inserted an ad in the newspaper, offering to listen to anybody at an hourly rate. She received numerous requests.

Dr. Carl Rogers[5] has developed a successful method of listening, called "non-directive counseling." He warns never to give the other person advice. Your greatest contribution can be made by listening with intent interest and empathy, accompanied by an occasional "Hm" or similar acknowledgment. This allows the speaker to sort out his thoughts, use you as a sounding board, or listening post, until he hits upon his own solution which satisfies him best in the long run.

An executive was trained in this method. Because of the consolidation of departments, he was given the unpleasant task of demoting a long-time employee. He decided to try "non-directive counseling" because he knew that the man would be shocked by the news. The executive called the man into his office, made the announcement, and then deliberately planned to keep still, regardless of provocation.

The employee heard the verdict. He stormed and raged.

The executive said nothing.

The man paced the floor, pounded the desk, blamed the company, and defended his own position.

Still the executive said nothing.

The employee gradually began to calm down. Still the executive was silent.

Finally, the man turned to him and said, "Your argument makes sense. I can appreciate both your situation and the time you have taken in trying to convince me."

The executive nodded in agreement. He had not said a word. The employee had convinced himself of the fairness of the change.

HOW TO HANDLE DIFFICULT PEOPLE

If you are desperate about dealing with a difficult person, by all means read that wonderful little book, *The Art of Loving*, by Erich Fromm.[6] It can clarify the problem and help you understand the person, and how to handle him.

When I was a junior high school student, Miss Myers, a social science teacher, heartily disliked me. To my knowledge, I had not given her cause for complaint. Perhaps I reminded her of someone she disliked, and I became her scapegoat. I sat in the front row, and Miss Myers took great pleasure in hurling sarcastic epithets at me. No matter how hard I tried to please her, nothing helped.

Finally I consulted an older friend who was adept in handling people.

"That's easy," said my friend. "Just beam love at her. Every time she glares at you, send loving thoughts back."

I made the effort. It was a real effort. It took a little time for Miss Myers to thaw. But she did. By the end of the school year, she had gone to the other extreme and was holding me up as a shining example to the rest of the class.

Our folklore is rich in expressions which point to the same moral. "You can catch more flies with honey than with vinegar." There is also the fable of the bet between the Sun and Wind. Each believed it could make a man shed his coat first. The Wind tried to blow harshly, but only succeeded in making the man pull his coat around himself tighter. The Sun, by beaming warmly, succeeded in making the man shed the coat.

A social worker told me that problems with people had always beset her until she learned the magic of dealing with them in "the spiritual way." It all started with her mother, who was a problem to all of her married children. Whenever her mother, a dominating woman, came to visit, she was carping and fault-finding. Her children dreaded her visits.

One day the social worker saw her mother approaching and experienced her usual dread reaction. Suddenly she realized that it was time to try a new approach. As soon as her mother walked in the door, the daughter said silently to her, "God bless you." All during the visit, in spite of what her mother did or said, the woman silently continued to say to herself, "God bless you." Soon, to her surprise, her mother began to relax and lose her hostility.

The social worker admitted that it *might* have been the consequences of her own changed attitude, but she doubted it, because later, her sister called and said, "What in the world has happened to Mother? She's become an unbelievably pleasant person."

Next, the social worker decided to test the approach with a group of women whom she was counseling. They agreed to try it. The reports they brought back were electrifying. One woman said, "I tried it on my husband when he came home from work, cross as a bear. His disposition sweetened before the evening was over." Others tried it with equal success on bickering children and unpleasant neighbors. I've tested the formula personally, and I can vouch that it really works.

The social worker said that she extended the technique not only to handle difficult people, but to handle difficult situations as well. She suggested that whenever a problem beyond your control arises, say or think inwardly, "The spirit of God (or whatever suits your religion) is working this problem out to a satisfactory conclusion." She added that she coupled this statement with an imagined picture of the desired conditions. Again, I can vouch for the fact that this method works. My experiences have now grown to the point where I feel confident in handling problem-people or problem-situations the spiritual way. Whether we apply love to mankind, or the love of God to troublesome conditions, it is a powerful and unbeatable tool. If it is employed consistently, there is no reason why it cannot dissolve frictions within families, in communities, and among nations.

26. The Power of Prayer

A psychiatrist, Dr. Robert Laidlaw, wrote[1]: "We should remember the words of Steinmetz, the electrical genius of the General Electric Company, who stated that the next realm for research was the spiritual, and the next field that of prayer."

Another psychiatrist once said to the minister, Dr. Norman Vincent Peale, "Prayer is the greatest power in the world. It is a pity that more people do not know how to use it." Dr. Blanton, the psychiatrist, told[2] of his conversation with Dr. Peale. "I have been praying for years that some of you gentlemen of the clergy would stop being suspicious of us psychiatrists, would see that in our separate ways we're working for the same goal; the salvation of human souls. Looks to me as if you might be the answer to that prayer. I've always thought we could make more progress working together than either religion or psychiatry could make working alone."

Drs. Blanton and Peale joined forces. The general plan was for Dr. Blanton to attempt to analyze from a psychiatric viewpoint some of Dr. Peale's more difficult cases.

"Neither of us foresaw, even dimly, what lay ahead," continued Dr. Blanton. "So great was the demand for this dual approach to human problems that almost immediately we found ourselves swamped. We organized a clinic at Marble Church, and called it, for lack of a more descriptive term, The Religio-Psychiatric Clinic. As time went on, we brought in more pastors, more psychiatrists, more psychologists. Still we could not keep up with the requests for aid.

"In 1951 the clinic was incorporated as the American Foundation of Religion and Psychiatry. . . . Last year our staff of thirty-five experts gave over six thousand hours of individual counseling. In addition we conduct a psychiatric training program to help clergymen, chaplains, and social workers of all faiths. We have set up a research program that includes the study of religious healing, the mysterious area where the faith of the individual seems to reach out and touch the healing power of God. We are trying to encourage other groups throughout the nation to set up similar clinics. If we succeed I firmly believe that we shall reverse the trend that has made mental illness our most critical national health problem and keeps more than half of our hospital beds full of confused, despairing people."

Another growing movement has been started at the North Carolina Baptist Hospital in Winston-Salem. The talents of physician, psychiatrist, and minister are combined in attempting to restore patients to health. From past experience, these people realized that singly one may fail, but jointly, as a healing team, the three professions may accomplish a great deal. Reverend Richard K. Young,[3] the minister of this healing team, reminds us of the legend engraved over a door. The door is not a church door, but over New York City's Columbia-Presbyterian Medical Center. The legend reads: "For of the Most High cometh healing."

THE UNION OF SCIENCE AND RELIGION

How do we know that prayer works? Where is the proof that will convince everybody? These questions haunted Reverend Franklin Loehr, whose background included chemistry as well as theology. With the assistance of more than 150 people, Reverend Loehr has conducted a series of experiments[4] of prayer on plants at the Religious Research Foundation, Inc. There have been more than 700 experiments, using 27,000 seeds and seedlings. Over 100,000 measurements have been taken. These experiments have been supplemented and corroborated by six other experimental groups. People participating in the experiments have included a wide variety of backgrounds of religious precepts. Such notables as Dr. Sorokin of Harvard, Aldous Huxley, Bishop Pardue, Gerald Heard, and Dr. Peale have watched the work with keen interest, assisted with suggestions and inquiries, and have quoted the work.

The work of Dr. Loehr and his assistants suggests that "a thought is a thing." For evidence, they cite studies that the brain emits faint waves which have been measured and graphed.

Experimental groups were given identical seeds and identical soil. The individuals who participated had already been organized as prayer groups to assist people. Now they were instructed to pray for the success and well-being of the seeds, and to pray that God would reveal himself through them and through the plants. Another group was given seeds and soil for planting, but without prayer. The seeds accompanied by prayer grew three to four times faster than those without prayer. Some individuals had better results than others, but all were effective.

As a result of the experiments, the Foundation drew the following conclusions:

1 Those who used strong *thoughts* got results.
2 "Green-thumb gardeners got their results by love. "I told them I loved them and how happy I was with them," was a technique, repeated in many cases, which led to the basic discovery of the emotional power of prayer. Those who prayed with *feeling* surpassed those who used *thought.*
3 The best results were obtained by persons who prayed to God, without adding their own feeling or thought, but asking only for *spiritual aid.*
4 Prayer is only one factor. Sometimes additional attitudes helped speed results:
    —"The Lord helps those who help themselves."
    —In some instances, faith itself helped. Skepticism acted as a retardant. Perhaps, they thought, this resulted because lack of self-confidence divides one's mental powers.
    —Clarity helped.
    —If members on the prayer team disagreed, the prayer work suffered.
    —Visualization and affirmation hastened results.

Dr. Loehr admitted that prayer force may not be as predictable as electricity, but he added, "Prayer is such a vast power that our research has only scratched the surface." Research is scheduled to be continued, and probably will be extended to people as well as plants.

The following conclusions were drawn from the experiments thus far:

1 Prayer can make a difference in the speed of seed germination, as well as in the rate of growth and vigor of the plant.
2 Prayer is an objective energy of some sort, as real as electricity.
4 Scientific laboratory research can be done in religious fields. The Foundation has done it. They have documentation.

Agnes Sanford[5] is another individual who has achieved success through prayer. She has achieved spiritual healing of people. Mainly she begins by asking for spiritual help. She reminds us that a vacuum cleaner won't work until it is plugged in to motive power (electricity). She reasons that spiritual power is comparable to electricity. We are merely the channel through which it may operate.

Max Freedom Long[6] has utilized autosuggestion successfully. The following represents a composite listing of techniques used by Mrs. Sanford and Mr. Long:

1 Relax
2 Accept or "turn on" the power, which may be had for the asking.
3 Direct that power to what you want accomplished.
4 Visualize it as you want it to be.
5 Give thanks that it is being accomplished.

If you do not know the best solution for a problem, and therefore are unable to visualize the outcome, it is suggested that you pray for the best solution. Assume the attitude of "Not my will, but Thine be done."

There are some books available which explore further the powers of prayer for spiritual healing. For those who are interested, some are recommended.[7]

A famous prayer, which has come down through the ages, and which still continues to serve as a guiding universal light to all of us, the world over, is that of Saint Francis of Assisi:

"Lord, make me the instrument of your peace. Where there is hatred, let me sow love. Where there is injury, pardon. Where there is doubt, faith. Where there is despair, hope. Where there is darkness, light; and where there is sadness, joy.

"O Divine Master, grant that I may not so much seek to be consoled, as to console; to be understood, as to understand; to be loved as to love. For it is in giving that we receive. It is in pardoning that we are pardoned. And it is in dying that we are born to eternal life."

27. The Will to Live

"We select our own illness. We choose our time to die," wrote Arnold A. Hutschnecker, M.D.[1] In support of these statements, he offered many cases from his own office files. Every day, wherever you go, you meet someone who is ill, who could get well, but doesn't want to. The strangest thing is that the person is not even aware of this self-destructive tendency because he has built a smoke screen to hide the truth from himself.

Here are some examples:

—Unhappiness in the home and deprivation of love can be a contributory factor to tuberculosis, according to Dr. D. M. Kissen.[2] A questionnaire answered by a group of people in a diagnostic chest clinic revealed that emotional factors preceded the onset of pulmonary tuberculosis.

—Dr. Desmond Curran reported[3] that nagging can produce illness, and also that disease may be acquired through suggestion. Sometimes people believe it is "fashionable" to have this or that disease. Soon they talk themselves into the major symptoms.

—A study found that 75 per cent of all absences due to sickness occurred in the same one-quarter of a firm's employees. This showed that the same people tend to be illness-repeaters.

—In the United States, eighty-five patients admitted for treatment for a variety of physical complaints were all found to be suffering from depression in disguise.

—Many cases of arthritis have been traced to resentment.

—E. E. Roberts declared[4] "dying is 90 per cent habit." He reported a story of a young woman who was convinced that she was about to die, even though she had passed the crisis of her illness. Her mother had died young. Her grandmother had died young. Subconsciously, the woman expected to follow suit.

All of these episodes seem unrelated, but they are connected by a basic element: emotion. If you live in constant fear or dread; if you suffer from loneliness or lack of love; if you exist in a constant state of anxiety, worry, or irritability, you constrict your body functions unnecessarily. These muscular constrictions shut off the circulation to that area held unconsciously rigid. Diseases resulting from muscular constriction are inclined to be spastic and affect particular parts of the body, including the larynx, heart, stomach, bladder, etc.

At first, there is a real, not imagined pain, growing out of this constriction. But the body cannot endure a prolonged state of tension, or the continuous shutdown of circulation, without undergoing damage. If not corrected, eventually it may lead to serious illness.

Sometimes people don't want to get well for a variety of reasons. They want sympathy, attention, or love. They sometimes wish to spite someone whom they feel has done them an injustice—real or imagined. Sometimes they want to rationalize their own feelings of guilt. These motives are not recognized by the persons themselves, and frequently not apparent to physicians. Yet there are many instances which could be cited.

Once I knew a man who had gone through the grueling work of preparing for his Doctor of Philosophy degree. On the day set for the written examination, he prepared to answer the first question, and found that his arm was paralyzed. The authorities granted him an extension of time. His paralysis left. But once again, when he approached the examination, his arm became paralyzed. He was *not* faking. Medical doctors examined him and diagnosed paralysis. Again he was excused, and recovered. When he became paralyzed for the third time as he faced the written examination he gave up his ambition to acquire the degree. He returned to his old position. Actually the man was afraid of failure, which was communicated to his subconscious. His foot or his other arm could have become paralyzed just as well, but it wouldn't have saved him from disgrace. An uncompleted examination was more face-saving than a failed examination. His subconscious had arranged for paralysis of his writing arm. He could bask in the sympathy of his friends, rather than in the shame of their scorn. Quite unconsciously, he chose his own illness. Had he decided to dictate his answers to the examination, he might have lost his voice temporarily.

Dr. Hutschnecker related[1] the story of the man who had suffered from an ulcer for thirty years. He told his doctor that he wished to be rid of it. But when the doctor questioned him further, and asked him what he would do with his life without an ulcer, the patient had no convincing answer. Dr. Hutschnecker remarked: "He had built his life around this illness. His colleagues in business catered to him, praised him for his devotion to his work despite his handicap. His wife and children cushioned him with attentions because of his 'condition.' To take away his ulcer would deprive him of the special position he enjoyed, and all the attentions which served him in place of mature relationships of mutual affection and responsibility. . . . He needed his ulcer."

It is not unusual to hear of a widowed parent having a heart attack conveniently whenever the only child threatens to leave home permanently. But it is unusual to hear of people insisting on unnecessary surgical operations. Yet, many cases are on the records. A patient subconsciously wants someone to feel sorry for him, or he wants to capture attention, or petting, or love. Physicians in a Veterans Hospital in California recognized that patients who felt no longer useful, or suffered from fear of loneliness or financial insecurity, often insisted on surgery as a subconscious desire to commit suicide.

The fight against loneliness, lack of affection, one's own aggression or sense of guilt can take many physical forms. Asthma, allergies, eczema have often been traced to psychosomatic causes. Dr. Hutschnecker reported[5] the findings of thirty unselected cases of skin disturbances where emotion, rather than an allergen, was responsible. "In other words, the foreign substance to which the patient was supposed to be allergic . . . had no effect unless there was an underlying emotional disturbance . . . almost exclusively those in which the patient felt resentment because he saw himself the victim of unjust treatment, about which he could do nothing." This was illustrated by the case of the man who exhibited no allergy when he stroked his dog, unless his wife was scolding him at the time.

Dr. Franz Alexander has established,[6] after a ten-year study, a statistical correlation between psychological patterns and seven diseases: duodenal ulcer, ulcerative colitis, bronchial asthma, hypertension, neurodermatitis, arthritis, and thyrotoxicosis.

In the cases of hypertension (or high blood pressure) Dr. Alexander explained how the pattern works. These people are caught in a continuous struggle to suppress their hostile feelings. They feel that they are "beasts of burden." They set up unrealistic goals for themselves, yet at the same time keep on working for the same company, are underpaid and overworked. Their situation leads to chronic tension.

Curt S. Wachtel, M.D.[7] found the following conditions related to emotional disturbances:

—intestinal disturbances, such as diarrhea, constipation, vomiting
—gastro-intestinal illness, including ulcers, jaundice, gallbladder and liver disturbances
—glandular problems such as thyroid disease, over- or underweight, malnutrition, diabetes, and low blood sugar
—circulatory disorders which include palpitation, irregular pulse, hypertension, coronary disease, angina, cerebral hemorrhage, and stroke
—diseases such as arthritis, rheumatism, poor posture, asthma, bronchitis, sinusitis, and frequent colds

Dr. Wachtel cited a case of a person choosing a time to die. After one of his elderly patients learned that she had a serious illness, she was naturally afraid she wouldn't live much longer. Dr. Wachtel admitted that he himself was to blame by saying something which he had meant at the time as a hearty reassurance: "Oh, you have five years yet."

Sometime later, he was called to the bedside of this woman who was having some minor attack unrelated to the original disease. When he attempted to diagnose it, she gave him the clue by reminding him that he had given her only five more years to live. Today, she said, was the end of the five-year period. . . .

Another patient was convinced that something unfortunate happened to him every five years. As long as he continued to believe this, it did. When Dr. Wachtel helped him to see the folly of giving himself this negative autosuggestion, the jinx was broken, and the man was no longer gripped by the compulsion. He also passed his five-year periods without unpleasant experiences.

Autosuggestion[8] may be beneficial as well as detrimental. Dr. Wachtel tells of the physician who recommended a strange procedure for a woman who had tried all sorts of cures for nausea without benefit. The physician advised her to discard all of her pills, and instead to buy a special type of grapes. She was told to eat only three grapes at a time, at ten-minutes intervals during the day. She was to accompany the eating by saying to herself, "These grapes are going to cure me." It worked. She might have had the same results with peanuts, or raisins, or something else. Apparently it was the positive autosuggestion that helped.

HOW CAN YOU HANDLE DESTRUCTIVE EMOTIONS?

"I am convinced that loneliness is 90 per cent self-pity," declared[9] Dr. John W. McKelvey. "The victim shuts himself in, others out. Everybody avoids him, for nobody loves a self-pitier."

Loneliness can be dissipated when the person stops centering attention upon himself, and looks to the world about him for interest, and especially in doing something for others. Robert Peterson[10] advised: "Don't put up with loneliness. Take steps to insure that you have a circle of friends."

Sometimes the death of a mate causes a difficult period of loneliness, as well as a sudden transition from the old to a new pattern of living.[11] Some people have tried and reported success with this method: Take only a step at a time, they advise. Each day, instead of concentrating on present feelings of loss and discomfort, remember a pleasant or charming experience shared with your mate.

After the death of her husband, Mrs. Raymond Clapper said: "I learned that loneliness is ridiculous when the world is so full of need. Nature has a way of taking our loved ones sooner or later. The happiest person I know is a friend who is completely alone in the world, yet never lonely. On Mondays she works at a blood bank, on Tuesdays she has charge of a hospital recreation room, Wednesdays she is a Travelers' Aid volunteer, Thursdays she labors in an elderly woman's garden. She plays the role of being her brother's keeper."

Some women have gone into businesses, such as real estate. In many communities, older women are esteemed as mature babysitters, foster mothers, or as valuable "housemothers" in institutions. Each can find an individual niche to alleviate loneliness.

Sometimes the death of a mate, although a painful experience, leads to the realization that being alone has its own rewards. One can eat when one wishes, sleep as long as one wishes, travel as fancy dictates, and do whatever one wishes without inconveniencing others. As with all things, one can concentrate on gains—not pains.

According to a survey[12] of widows, they resent others trying to solve their problems, and they resent their widowhood. A conclusion drawn from the survey was: "that every woman should be, and can be, prepared to make a life for herself in this world."

HOW CAN YOU AVOID CATASTROPHES?

The story is told[13] of a colonel who rushed in and reported to the general, "Our position is catastrophic!"

"Don't use such big words," the general replied. "Just get busy and get our boys out of here."

Dr. Peale advised never to admit your position is catastrophic. Don't allow yourself to worry about what might happen. Don't cross your bridges prematurely, or let imaginary fears engulf you. Don't panic. Don't overdramatize a situation or waste time with regrets. These are destructive forces which dissipate your energies.

KNOW YOURSELF—BE YOURSELF

Dr. Hutschnecker suggested that if we are to achieve inner peace, we must grow up. We must deal firmly with our immaturities left over from childhood. We cannot hide them, nor assume that they will disappear with the years. "We must consciously seek maturity by making a positive adjustment to living which comes from knowing ourselves."

Don't be afraid of being yourself, whatever that self may be. The fear of being different often leads to imaginary fears of disapproval. Actually we need more *individuals,* not more blind conformists. Whoever achieves success usually achieves it because he has capitalized on giving of himself or his uniqueness. Accept yourself—your best self. Do the best work you can in some field which interests you.[14]

It is just as possible to turn an inadequacy to something constructive as to use it destructively. Theodore Roosevelt became an athlete because of his puniness. Franklin D. Roosevelt strove even harder after his polio attack. Samuel Gridley Howe, a nineteenth-century educator of the blind, declared, "Obstacles are things to be overcome." Many a handicap has been turned into a challenge. Harness your emotions to constructive goals. Indeed, it is never too late to begin. The years themselves may prove to be an obstacle to be overcome. This has been attested by many grandparents who have returned to school for degrees or new fields of learning.

THE POWER OF THOUGHT

An interesting experiment[15] was performed in which thoughts have been photographed. "A fresh package of sensitized photographic paper was opened by a *Los Ange-*

les Times photographer in the light of a ruby darkroom lamp. This is normal darkroom procedure, as ruby or amber light does not affect the type of sensitized paper which was used. However, as an additional precaution against any possible light leaks, control pieces of paper were placed at various spots throughout the darkroom. Upon development, these control papers were found to be totally blank, without even the slightest fog of discoloration.

"After the package was opened, the sheets were cut into strips. Each of the persons present held one of the strips to his forehead while thinking of some object. Care was taken to hold the strips by the edges and to make sure they did not touch the forehead. After three minutes' concentration, the strips were collected.

"Next, each person described the object on which he had concentrated. Fresh developing and fixing baths were then mixed, and the strips processed by the *Times* photographer. *All but two of the strips had recorded a photographic image."*

The pictures on the films correlated with the objects thought about for three minutes. The following week, a similar experiment was repeated. Another experiment was repeated at Mt. Wilson Observatory. These experiments also gave positive results.

THE POWER OF THE SUBCONSCIOUS

You have probably heard people say that they never use an alarm clock. They merely tell themselves at night what time they wish to arise the next morning, and automatically they awaken. How does it work? The subconscious accepts and carries out the suggestion. Your subconscious is your silent partner. It performs as it is bid. Ideas charged with emotion make an even greater impression on it. Sometimes it accepts this emotion, though unvoiced, assuming it is your desire. Because the subconscious is so suggestible, you are dealing with potential dynamite.

Whatever your religion, you cannot fail to appreciate Mary Baker Eddy's admonition, "Stand Porter at the Door of Thoughts." The subconscious will act as blindly and unthinkingly on your negative suggestions as on your positive ones. Suggestion is a double-edged sword. It can work to your advantage or disadvantage. The blueprint is up to you.

One way of reaching your subconscious is by hypnotism. It is wise to allow only experienced physicians and psychiatrists to handle hypnotism.[16] However, a do-it-yourself method is autosuggestion. David Seabury made some practical suggestions. You needn't rely on will power or try to outwit your emotions in order to accomplish your goal. You need only to make a picture.

William James discovered[17] this technique more than seventy-five years ago. It explained the image-making process.

"The will," said Mr. Seabury, "obeys the thought patterns or mental images in your mind and operates as they command. . . . There are those who do not want to take the trouble to develop self-command; the lure of self-indulgence is too strong and the effort to achieve self-direction seems too great. Such persons pay and pay for this delinquency for nature is inexorable. After a while they lack the strength to deal with life and its problems overcome them. . . . There is no peace except by formulative thought." Mental imagery changes all this.

"It is a process of visualizing how you wish to behave in definite situations. It is also a portrait making activity in one's mind of the fulfillment of desires."

To make your wishes come true, the wishes also must be motivated or accompanied by strong emotions. This is the suggested procedure.

"Sit back and close your eyes for a few moments. As you do so, imagine that a motion picture is before you in which you are playing the lead. Let your emotions rise and go into the picture. It should be a portrayal that concerns some special desire of yours, a drama about some longing you greatly wish to have fulfilled. Picture it happening with you yourself playing intensely in it: that is, heroically conquering the difficulties in the way. . . . Live this emotion every evening for a while before you go to sleep. Go back every night to the same picture. Recreate it. Improve it. Add conclusive touches here, shorten it in places that move too slowly. Work at it as faithfully as a scenario writer would in order to give you a dynamic picture."

If you have more than one wish, do not dramatize all your wishes at once. Consider each separately and build a separate picture around it.

To succeed, to maintain health, to be happy, accept no negative ideas, suggestions, or mental pictures. Reject them and substitute a positive picture, thought, and idea in its place. Meanwhile, tell no one else of your project or they will try to rip it to pieces. In spite of your feelings, act confident, happy, and well. Keep at it. "Negativity will only control you if you let it. It ruins your life if you behave like a pessimist. Act as a conqueror and you will conquer."

Mr. Seabury concluded: "A careful study of the lives of fortunate people reveals that they let nothing dim their hopes, interests and loves, nor allowed anything to stand in the way of the fulfillment of these primary longings.

"When you and I realize this fact and also apply it, our personal lives become transformed whatever our problems may be. . . . This is the way to mental health and a return to the spirit of youth."

AVOID THE HABIT OF DYING

No matter what your age, or your condition, it is never too late to begin to change your life for the better. E. E. Roberts wrote:[18] "The body is merely a vehicle which at once houses a spirit and transports it from place to place. It is subject to the spirit. It will survive hardship, or hurl itself to destruction at the behest of its spirit . . . but when there is renewed desire, there is also renewed vigor."

Dr. Hutschnecker wrote:[1] "We die only when we are ready to die. We die when we want to die . . . If we truly have the incentive to live, *if we have something to live for*—then no matter how sick we may be, no matter how close to death, we do not die. We live because we want to live. . . . It is not the 'everything to live for' in the eyes of the world which keeps us alive, but the something which meets our own uncompromising measure of what is worth living for. . . . To live long, not only in years but in the enjoyment of them, we must understand and control the forces which shorten life. Both early and late, we must take the time to cultivate the will to live."

ACTIVE RETIREMENT

Retirement studies[19] showed that people who retired at an early age might live longer than those who retired late. More interesting yet, other retirement studies[20] suggested that those who retired *voluntarily* lived longer and in better health than reluctant retirees.

Mollie Hart[21] pointed out: "If a man has any choice in the matter, and if he has a desire to retire or is likely to be required to do so, he should retire voluntarily, not wait until he is forced to, and he should do it before he reaches sixty-five, the age when retirement is customary or mandatory."

The obvious reason for this decision is to avoid that devastating feeling of no longer being needed. Voluntary retirement gives one the opportunity to save face. Compulsive retirement usually leaves the person feeling rejected, unproductive, and facing a life of emptiness.

A physician explained to me why he feels that when a man retires, he sometimes signs his own death warrant. A retiree may change his habits with newly acquired leisure. He may have more time to think. He often eats and drinks more, but exercises less regularly. Thus he flaunts the laws of good health. Soon, he may become prey to liver, heart, or blood-pressure disturbances. This physician's advice: when a man thinks he needs a rest, let him *change* his activity rather than *cease* activity.

Experts in this field suggest that a person should plan and prepare himself *before* retirement, to begin a second and satisfying career as soon as retirement from his first career ends. This will eliminate the demoralized feeling which descends upon so many retirees. Night school, correspondence courses, reading and research in a few field, a lifetime hobby, or a self-owned business may all pave the way for a successful transition.

Dr. Heinz Woltereck stated[22] that if there is a secret to prolonged life or staying young, that secret is work. Man must use his organs if he wants them to stay healthy and active. As evidence he cited the study of identical twins. One was given regular work. The other was allowed to lead a completely indolent life. At the end of the experiment, all organs and muscles of the twins were examined thoroughly. The general health was evaluated. The one who had worked had improved. The one who had loafed had deteriorated.

People with active, inquiring minds also live longer than those whose minds are shut to new ideas, or who resist social contacts. We all know some examples of this. Working on some interesting project is a release from self-pity, restlessness, and boredom.

Herbert Hoover, when he was eighty-six years old, made these observations during an interview.[23] "I've always been able to find new jobs that proved infinitely more satisfying than sitting around. When I'm loafing I get tired of myself. Work is the stuff that satisfies—that makes you feel useful and worth while.

"I've known people who have retired from work and I've been bored by a good many of them. Without work to occupy their minds they turn to reminiscing and talking about their ills and pills. It's not long until they begin falling apart. An oldster who keeps working—even if it's only part-time work—has something worth talking about.

"It's my philosophy that folks should never retire from all work. If they do there's a good chance they will shrivel into a nuisance to all mankind!"

The following check list[24] was drawn up by the New York State Joint Legislative Committee on aging problems. You are not old unless:

You feel old.
You feel you have learned all you need to learn.
You find yourself saying, "I'm too old for that."
You feel that tomorrow holds no promise.
You find no amusement in youth's fun, and their banter irks you.
You would rather talk than listen.
You long for the good old days, sure that they were the best.
You won't help your neighbors, friends, or community.
You have no plans for tomorrow.
You would rather win an argument than be right.

Luigi Cornaro, an Italian nobleman of the Renaissance, wrote a book[25] on how to live one hundred years. He pointed out that the mere prolongation of life is in itself useless unless that life is healthy and contented. The object of health should be to enable us to forget the body, and to carry on our interests and life-activities without impediments or interference. We should do something with our lives, and the object of health is to insure this possibility, making as useful and constructive a life as possible.

YOU CAN STAY YOUNG LONGER

If it is possible to "think thin," then it is possible to "think health" and "think youth." In these days of radiation, chemicals, sprays, and compulsive advertising, it is almost impossible to eat or live 100 per cent perfectly. But psychologists admit that our subconscious minds will accept and act upon suggestion, whether it is given through advertisement, hypnotism, or autosuggestion. We must do what we can for our body and mind. We can supplement it with autosuggestion by making a picture of youth and health. If a picture of age and disease should intrude, we can erase it immediately and substitute the desired image. Eliminate the negative. Accentuate the positive.

The total plan for staying young longer embraces not one, but every facet of your life, blending them into a perfect, harmonious whole: you. It includes nutrition, exercise, rest, play, emotions, prayers, thoughts.

At whatever age this book has found you, remember that staying young longer is not a goal in itself. Rather, it should be a means to a more purposeful and satisfying life dedicated to God and others as well as ourselves.

The Divine Spark comes to us via many routes—food, air, water, and prayer. This is the reason for staying as close to nature as possible, eating natural foods, drinking clean water, breathing pure air, and receiving Divine Guidance. We have been given our life through nature, and that is how it is best maintained.

Appendix

FOREWORD

1 D. T. Quigley, M.D., F.A.C.S., *The National Malnutrition,* (Milwaukee, Wis., Lee Foundation for Nutritional Research 1943).
2 *U.S. News and World Report,* Aug. 23. 1957.
3 N. Philip Norman, M.D., *The Triad Disease,* (Milwaukee, Wis., Lee Foundation for Nutritional Research, 1958).
4 Hans Selye, M.D., *The Stress of Life,* (New York, McGraw-Hill Book Co., Inc., 1956).
5 Jonathan Forman, M.D., former editor, *The Ohio State Medical Journal*; Henry Trautman, M.D., Madison, Wis.; Clive McKay, Ph.D., Dept. of Nutrition, Cornell Univ., Ithaca, N.Y.; Drs. Quigley and Norman, previously quoted, and others.
6 Sir Robert McCarrison, M.D., Fellow of the Royal College of Physicians, London, *Studies in Deficiency Diseases,* (Oxford Medical Publication, 1921), available from Lee Foundation for Nutritional Research, Milwaukee, Wis.
7 Weston A. Price, D.D.S., *Nutrition and Physical Degeneration,* (Los Angeles, American Academy of Nutrition, 1945), available from Lee Foundation for Nutritional Research, Milwaukee, Wis.
8 William A. Albrecht, Ph.D., Professor Emeritus, Dept. of Soils, Univ. of Missouri, *Soil Fertility and Animal Health,* Webster City, Iowa, Fred Hahne Publishing Co., 1958).

CHAPTER 1

I David D. Stonecypher, Jr., M.D., "Old Age Need Not Be 'Old'," *New York Times Magazine,* Aug. 18, 1957.
2 Bernard Seeman, "Add Years to Your Life and Add Life to Your Years," *Family Circle,* June, 1959.
3 N. Philip Norman, M.D., *The Triad Disease,* (Milwaukee, Wis., Lee Foundation for Nutritional Research, 1958), p. 107.
4 *Modern Nutrition,* Nov., 1958, p. 20; Howard H. Hilleman, Ph.D., Oregon State College, "Congenital Deformity," *Clinical Physiology,* Vol. 1, No. 3, Winter, 1959.

5 E. V. Shute, M.D., "The Prevention of Congenital Anomalies in the Human," *Journal of the American Medical Association,* Oct. 5, 1957.
6 *New York Journal American,* Jan. 2, 1959.
7 *Royal Bank of Canada Newsletter,* Dec., 1955.
8 Science Service Report, Sept. 25, 1958.
9 *Vitamin News,* Aug. 15, 1936.
10 Joe D. Nichols, M.D., "A Concept of Totality," *Natural Food and Farming Digest,* 1957, available from Natural Food Associates, Atlanta, Tex.

CHAPTER 2

1 *Norwegian Oil,* available from Sanborn's, 6 Union St., Boston, Mass.
2 Alfred McCann, *Science of Keeping Young,* (New York, Doubleday & Company, Inc., 1926).
3 *Orlando Sentinal,* Jan. 3, 1954.
4 Clive McCay, Ph.D., "Nutritional Experiments on Longevity," Journal of the American Geriatrics Society, Vol. 6, No. 3, March, 1958.
5 E. Tuttle, *Geriatrics,* Vol. 9, Dec., 1954, p. 579; Drs. Norman Jolliffe, Tisdale and Cannon, *Clinical Nutrition,* (New York, Paul B. Hoeber, Inc., 1950), pp. 14-31.
6 *New York Times,* March 2, 1960.
7 *Family News,* Vol. 2, No. 4, July, 1955, Page Foundation, St. Petersburg, Florida.
8 William L. Laurence, "You May Live Forever," *Look,* Vol. 17, No. 6, March 24, 1953.

CHAPTER 3

1 Sol. Hirsch, M.D., "The 'Well' Person Who Feels Sick," *New York State Journal of Medicine,* Vol. 55, No 8, April 15, 1955.
2 *Science Newsletter,* Vol. 78, Sept. 17, 1960, p. 185.
3 Francis Pottenger, Jr., M.D., William Albrecht, Ph.D., and Ira Allison, *Merck & Co. Report,* July, 1949.
4 L. Stambovsky, "The Need for Vitamins," (Milwaukee, Wis., reprint, Lee Foundation for Nutritional Research); D. T. Quigley, M.D., "Diet Deficiency in Everyday Life," lecture to American Nutrition Society convention, May, 1953, (Milwaukee, Wis., reprint, Lee Foundation for Nutritional Research).
5 *Prevention Magazine,* Emmaus, Penna., May, 1954, p. 112.
6 Gilles Lambert, *Conquest of Age,* (New York, Rinehart & Co., Inc., 1959), p. 110.

7 Geoffrey Bocca, "Mystery of the Youth-for-Sale Doctor," *True, The Man's Magazine,* June, 1960.
8 Heinz Woltereck, *A New Life in Later Years,* (New York, Dial Press, 1959).
9 Adelle Davis, *Let's Cook It Right,* (New York, Harcourt Brace & Co., 1947), p. 110.
10 Henry Marx, *H3 In the Battle Against Old Age,* (New York, Plenum Press, Inc., 1960).
11 Hans Selye, M.D., *The Stress of Life,* (New York, McGraw-Hill Book Co., Inc., 1956).

CHAPTER 4

1 Carlton Fredericks, Ph.D., *Eat, Live and Be Merry,* (New York, Paxton Slade, 1951), p. 25
2 Paul de Kruif, "How to Prolong the Prime of Life," *Reader's Digest,* June, 1957.
3 Tom Spies, M.D., address to the American Medical Association, 1957.
4 Sir Robert McCarrison, M.D., *Studies in Deficiency Diseases,* (Oxford Medical Publication, 1921), available from Lee Foundation for Nutritional Research, Milwaukee, Wis.

CHAPTER 5

1 James M. Hundley, "Statistics of Health," *U.S. Department of Agriculture Yearbook on Food,* 1959, pp. 175-180.
2 "Study of Elderly Finds 77% Ailing," *New York Times,* Oct. 4, 1960.
3 William Coda Martin, M.D., "Health of the Nation in Regard to Chronic Degenerative or Metabolic Diseases," *Journal of Applied Nutrition,* Vol. 10, No. 3, 1957.
4 *Science Newsletter,* Dec. 12, 1959.
5 "Hospital Supply Stocks—A Picture of Health," *The Growth Industry Survey* (Wellesley Hills, Mass., Danforth-Epply Corp., Nov. 10, 1960).
6 Social Security Administration report, *New York Times,* Dec. 24, 1959.
7 Adelle Davis, *Let's Eat Right to Keep Fit,* (New York, Harcourt, Brace & Co., Inc., 1954).
8 Curtis C. Shears, "Faulty Diet is Blamed for Youth Delinquency," address to Federal Bar Association, Chicago, Ill., reported in *Modern Nutrition,* Nov., 1960.
9 Hirschland Kraus, report, Institute of Physical Medicine, Bellevue Medical Center, New York.

10 "Youth in U.S. Lags in Tests of Fitness," *New York Times,* Dec. 7, 1960.

11 John T. Connor, address to Manufacturing Chemists Association, June 12, 1958.

12 Jean R. Shor, *After You, Marco Polo,* (New York, McGraw-Hill Book Co., Inc., 1955); J. I. Rodale, *The Healthy Hunzas,* (Emmaus, Penna., Rodale Press, 1949); A. E. Banik and R. Taylor, *Hunza Land,* (Long Beach, Calif., Whitehorn Publishing Co., 1960); Robert McCarrison, M.D., *Studies in Deficiency Diseases,* (Milwaukee, Wis., Lee Foundation for Nutritional Research, 1945); John Clark, *Hunza, Lost Kingdom of the Himalayas,* (New York, Funk & Wagnalls Co., 1956); John Tobe, *Hunza,* (Emmaus, Penna., Rodale Books, Inc. 1960).

13 H. Leon Abrams, Jr., "The Healthy Maya," *Family News,* Vol. 7, No. 3, March, 1960. Page Foundation, St. Petersburg, Florida.

14 Arnold De Vries, *Primitive Man and His Food,* (Chicago, Ill., Chandler Book Co., 1952).

15 Weston A. Price, D.D.S., *Nutrition and Physical Degeneration,* (Milwaukee, Wis., Lee Foundation for Nutritional Research, 1945).

16 Vilhjalmur Stefansson, *Not By Bread Alone,* (New York, The Macmillan Co., 1946); also V. Stefansson, *Cancer: Disease of Civilization?,* (New York, Hill and Wang, Inc., 1960).

CHAPTER 6

1 D. T. Quigley, M.D., *The National Malnutrition,* (Milwaukee, Wis., Lee Foundation for Nutritional Research, 1943).

2 Thor M. Gullickson and Charles E. Calverly, "Cardiac Failure of Vitamin-Free Rations as Revealed by Electro-Cardiograms," Minnesota Experiment Station, reported in *Science,* Oct. 3, 1946, p. 312; *Annals of New York Academy of Science,* Vol. 52, No. 3, Oct., 1949, p. 258.

3 Franklin Bicknell, M.D., *Chemicals in Food and in Farm Produce,* (London, Faber and Faber, 1960), p. 67.

4 Royal Lee, D.D.S., "Primary Cause of Disease," reprint, Lee Foundation for Nutritional Research, Milwaukee, Wis.

5 *Modern Nutrition,* May, 1960.

6 E. V. McCollum, Russell M. Wilder, Agnes Fay Morgan, Helen S. Mitchell, "To Enrich or Not to Enrich: A Symposium," *Journal of Home Economics,* Vol. 37, No. 7, Sept., 1945.

7 Leonard Wickenden, *Our Daily Poison,* (New York, The Devin-Adair Co., 1955), p. 162.

8 Edward Eagle, Ph.D., "Delaney Hearings on Chemicals in Foods and Cosmetics," 1950, p. 296; Leonard Wickenden, *Our Daily Poison,* (New York, The Devin-Adair Co., 1955).
9 *The Daily Republic,* Mitchell, S.D., Aug. 13, 1959.
10 *Academy of Applied Nutrition Newsletter,* March, 1949.
11 Mail-order houses for stone-ground, organically grown, unfumigated whole grains and other natural foods include advertisers in *Natural Food and Farming Magazine,* Atlanta, Tex.; *Organic Gardening and Farming, Prevention,* and *Organic Foods Directory,* all Emmaus, Penna.
12 Companies for electric stone-grinding machines, home models for family-size portions, include Meadows Household Stone Burr Mill, North Wilkesboro, N.C.; Lee Household Flour Mill, Lee Engineering Co., 2023 W. Wisconsin Ave., Milwaukee, Wis.; Hol-Grain Mill, 161 W. Wisconsin Ave., Milwaukee, Wis.; other brand names are Mitey-Mill, Moulinex, Rotary Super Mill and Speedmaster; for a comparative analysis, write Mrs. Mildred Hatch, 8 Pine St., St. Johnsbury, Vt.
13 Richard Carter, "The Unappetizing Truth about Dry Cereals," *Pageant,* Dec., 1957.

CHAPTER 7

1 Melvin E. Page, D.D.S. and D. L. Brooks, *Body Chemistry in Health and Disease,* (St. Petersburg, Fla., Page Foundation for Biochemical Research, 1954).
2 N. Philip Norman, M.D. and James Rorty, *Tomorrow's Food,* (New York, The Devin-Adair Co., 1956).
3 List compiled by Michael J. Walsh, M.Sc., American Foundation for Medical Dental Science, Beverly Hills, Calif. from Catharyn Elwood's *Feel Like A Million!*
4 Royal Lee, D.D.S., "Sugar and Sugar Products," address to lay members of the American Academy of Applied Nutrition, Apr., 1949, reprint, Lee Foundation for Nutritional Research, Milwaukee, Wis.
5 Frances D. W. Lukens, M.D. and Curtis Dohan, M.D., University of Pennsylvania, *Endocrinology,* Vol. 42, 1948, p. 244.
6 Martha Koehne, R. W. Bunting and Elise Morrell, "Control of .Dental Caries in Children," *American Journal of Diseases in Children,* Vol. 48, 1934, p. 6; H. Beck and J. Jensen, "Dental Caries Prevention Service," *Journal of Dental Research,* Vol. 27, No. 6, Dec., 1948, p. 737; Guttrom Toverud, "Decrease in Caries Frequency in Norwegian Children During World War II," *Journal of the American Dental Association,* Vol. 39, Aug. 1949, p. 127.
7 Clive M. McCay, Ph.D., "Nutritional Factors in the Maintenance of Bones and Teeth," *Dental Digest,* Aug., 1954, p.

362; Clive M. McCay and Lois Will, "Erosion of Molar Teeth by Acid Beverages," *Journal of Nutrition*, Vol. 39, 1949, p. 313; articles in *Journal of American Medical Association*, Aug., 1915, p. 145, p. 321.

8 Curtis M. Wood, Jr., M.D., *Overfed But Undernourished*, (New York, Exposition Press, 1959), p. 13.

9 D. T. Quigley, M.D., *The National Malnutrition*, (Milwaukee, Wis., Lee Foundation for Nutritional Research, 1943).

10 Morton S. Biskind, M.D., "The Technic of Nutritional Therapy," *American Journal of Digestive Diseases, V*ol. 20, No. 3, Mar., 1953.

11 *Handbook of Nutrition*, (Chicago, Ill., American Medical Association, 1951) sec. ed., p. 635.

12 *Science Newsletter*, Nov. 21, 1959.

13 Epharaim Racker, M.D., R. Wu and J. P. Alpers, Public Health Research Institute, New York; Richard Uhl, M.D., Alvin S. Levine, M.D. and James Ashmore, M.D., *Science Newsletter*, Nov. 28, 1959.

14 E. M. Abrahamson, M.D., and A. W. Pezet, *Body, Mind and Sugar*, (New York, Henry Holt & Co., Inc., 1951).

15 *Modern Nutrition*, Sept., 1960, p. 18.

16 Donald Shriber, D.D.S., F.C.D., F.A.C.D., "Why All This Fuss About Sugar?," *Modern Nutrition*, Sept., 1958.

17 Benjamin P. Sandler, M.D., *How to Prevent Heart Attacks*, (Milwaukee, Wis., Lee Foundation for Nutritional Research, 1958); *Diet Prevents Polio*, (also Lee Foundation, 1951).

18 Roger J. William, Ph.D., *Free and Equal*, (Austin, Tex., University of Texas Press, 1953); *Alcoholism: The Nutritional Approach*, (also University of Texas Press, 1959).

19 Basil G. Bibby, D.D.S., a six-year study for Eastern Dental Dispensary, Rochester, N.Y., also *British Medical Journal*, Vol. 104, 1958, pp. 305-9.

CHAPTER 8

1 From a statement made to the author. Further ref.: William Coda Martin, M.D., "Insecticides Today and Tomorrow," *Natural Food and Farming Magazine*, Vol. 4, No. 1, Apr., 1957; W. J. Hayes, Jr., Ph.D., W. F. Durham and C. Cueto, Jr., "The Effects of Known Repeated Oral Doses of Chlorophenothane (DDT) in Man," *Journal of the American Medical Association*, Vol. 162, Oct. 27, 1956, p. 890; J. M. Barnes, *Toxic Hazards of Certain Pesticides to Man*, (New York, World Health Organization, Monograph 16, 1953); "Clinical Memoranda on Economic Poisons," U.S. Health, Education and Welfare Dept., Public Health Service, Apr., 1956.

2 Malcolm M. Hargraves, M.D., Hemotology, Mayo Clinic, "Chemical Pesticides and Conservation Problems," (Milwaukee, Wis., Lee Foundation for Nutritional Research, reprint No. 105).

3 Morton S. Biskind, M.D., testimony before House Select Committee, 1950; Morton S. Biskind, M.D. and Irving Bieber, M.D., "DDT Poisoning—A New Syndrome with Neuropsychiatric Manifestations," *American Journal of Psychotherapy,* Vol. 3, No. 2, Apr., 1949; "Public Health Aspects of the New Insecticides," *American Journal of Digestive Diseases,* Vol. 20, No. 11, Nov., 1953, pp. 331-41; "On the Alleged Harmlessness of DDT for Man," *Journal of Applied Nutrition,* Vol. 10, No. 2, Spring, 1957, pp. 493-7; "DDT Poisoning and the Elusive 'Virus X': A New Cause for Gastroenteritis," *American Journal of Digestive Diseases,* Vol. 16, No. 3, Mar., 1949, pp. 79-84; "The Technic of Nutritional Therapy," *American Journal of Digestive Diseases,* Vol. 20, Mar., 1953, pp. 57-67.

4 Morton S. Biskind, M.D., *American Journal of Clinical Nutrition,* Vol. 16, No. 12, Dec., 1946, pp. 737-45.

5 Granville F. Knight, M.D., F.A.C.A., "What Are Pesticides Doing to Human Beings?," *Modern Nutrition,* Apr., Sept., Dec., 1952.

6 Leonard Wickenden, preface, *Our Daily Poison,* (New York, The Devin-Adair Co., 1955).

7 "Morbidity and Mortality," U.S. Dept. of Health, Education and Welfare, weekly reports, *Public Health Service Annual Supplement,* Vol. 3, No. 53, Oct., 1955 and Vol. 8, No. 53, Sept. 16, 1960. Infectious and Serum Hepatitis reports:

1945	*	1953	33,700
1946	*	1954	50,093
1947	1,092	1955	31,961
1948	709	1956	19,234
1949	2,027	1957	14,922
1950	2,820	1958	16,294
1951	7,349	1959	23,754
1952	17,428		

*"Prior to 1957, the states did not report such cases to the U.S. Public Health Service. From 1947 to 1951, such data was reported by relatively few states." Note from Administrative Officer, National Office of Vital Statistics.

8 L.A. Scheele, "Summary of Investigations on DDT Residues in Foods and DDT Storage in Human Fat," *Chemicals in Foods and Cosmetics,* Washington, D.C., Part 3, 1952, p. 1318.

9 Kenneth P. Dubois, Professor of Pharmacology and Direc-

tor of Toxicology Laboratories, Univ. of Chicago, *Organic Gardening and Farming*, Oct., 1960.

10 Kenneth P. Dubois, "Insecticides, Rodenticides, Herbicides: Household Hazards," Postgraduate Medicine, Vol. 24, No. 3, Sept., 1958.

11 "Official FDA Tolerances," *National Agricultural Chemicals Association News and Pesticide Review*, all issues through Feb. 1, 1960; special issue Vol. 18, No. 3., Feb., 1960.

12 *Medical Tribune*, July 11, 1960.

13 "The Public's Stake in the Cranberry Incident," *Clinical Physiology*, Vol. 1, No. 3.

14 E. O. Lichtenstein, Professor of Entomology, Univ. of Wisconsin, "Absorption of Some Chlorinated Hydrocarbon Insecticides from Soils into Various Crops," *Agricultural and Food Chemistry*, Vol. 7, No. 6, June, 1959, p. 430.

15 Mail order suppliers include advertisers in *Natural Food and Farming Magazine*, Atlanta, Tex.; *Organic Gardening and Farming Magazine, Prevention and Organic Food Directory*, all Emmaus, Penna.

16 "Biological Control of Insect Pests in the Continental United States," *U.S. Department of Agriculture Technical Bulletin*, No. 1139, June, 1956; Richard B. Gregg, "Companion Plant Herbs," *Biodynamics*, Vol. 3, No. 1; C. H. Hoffman; "Biological Control of Noxious Insects and Weeds," U.S. Dept. of Agriculture, Agriculture Research Service, Entomology Research Div., 1959; C. H. Hoffman, "Time Out for Survival," *Yankee Magazine*, Mar., 1960; "Mosquito Control," leaflet, Audubon Center, Riversville Rd., Greenwich, Conn.; "Federal Men Marshall Moths, Wasps in War on Farm Pests, Weeds," *Wall Street Journal*, Jan. 12, 1960; "A Tiny Federal Force Tries to Wipe Out an Army: House Flies," *Wall Street Journal*, Apr. 12, 1960; Beatrice Trum Hunter, "Gardening Without Poison," booklet, 35¢, Friends of Nature, 346 Concord Ave., Belmont, Mass., 1961; A. D. Pickett, "The Control of Apple Insects in Nova Scotia," leaflet, Kentville Research Station, Nova Scotia; Philip B. Dowden, "Biological Control of Forest Insects in the U.S. and Canada," *Journal of Forestry*, Vol. 55, No. 10, Oct., 1957; Commercial preparations include Doom, (milky spore disease against Japanese beetles), Fairfax Biological Laboratory, Clinton Corners, N.Y.; Electrocuting Fly Screen, Detjen Corp., Pleasant Valley, N.Y.; for ladybugs, praying mantid cases, etc., see advertisements in *Organic Gardening and Farming Magazine*, Emmaus, Penna.

17 Harvey S. Wiley, M.D., *The History of a Crime Against a Food Law*, (Milwaukee, Wis., Lee Foundation for Nutritional Research).

CHAPTER 9

1 Ione Dennis Starkey, homemaker, testimony before Congressional Hearing on Color Additives, 1960, pp. 230-231.

2 Congressional Hearings on Chemicals in Food Products, 1951; Congressional Hearings on Chemicals in Foods and Cosmetics, Parts 2 and 3, 1951-1952; Congressional Hearings on Food Additives, 1957-1958; Congressional Hearings on Color Additives, 1960; Leonard Wickenden, *Our Daily Poison,* (New York, The Devin-Adair Co., 1955); William Longgood, *The Poisons in Your Food,* (New York, Simon and Schuster, Inc., 1960); Franklin Bicknell, M.D., *Chemicals in Food and Farm Produce,* (London, Faber and Faber, 1960).

3 "U.S. Study Planned on Container Wax," *New York Times,* June 12, 1959.

4 *Modern Nutrition,* Nov., 1960, p. 22.

5 "Synthetic Vitamin D," *Journal of the American Medical Association,* Feb. 24, 1953: "Irradiated ergosterol, ivosterol . . . can cause intoxication during childhood, lack of appetite, thirst, polyuria, vomiting, emaciation, cachexia, calcification of the placenta, precocious closure of cranial sutures and fontanelles with mental damage, renal insufficiency which may terminate in death, osteoporosis, peristeal thickening and abnormal calcification." Clarence A. Mills, M.D., Professor of Experimental Medicine, Univ. of Cincinnati, on dangers of administering single vitamins in foods, writing in *Journal of the American Medical Association,* 1941: "Such recommendations may be a means of upsetting the vitamin balance in the body and inducing other forms of disease. It is observed that the addition of thiamin to bread and other commonly used foods without a control over the intake level, carries with it a potentiality for harm. This is especially true in the middle temperate regions where metabolic disturbances are already prone to occur." Dr. Mills recommended that "the medical profession should recognize the need for greater conservatism in the use of this vitamin and its distribution through nonmedical as well as medical channels. It should be placed on a more scientific and controlled basis." To which Dr. Agnes Fay Morgan adds a warning of the dangers in food programs of adding one or two vitamins to staple foods where food may be deficient in other vitamins. The health may become worse rather than better because of a vitamin balance upset. She says: "If any food is so bad that it needs to be 'enriched' or 'fortified' with synthetic vitamins, it is so bad that it should be rejected."

6 Arthur S. Flemming, former Secretary, U.S. Dept. of

Health, Education and Welfare, testimony before Congressional Hearing on Color Additives, 1960, p. 70.

7 Granville F. Knight, M.D., William Coda Martin, M.D., Rigoberta Iglesias, M.D. and William E. Smith, M.D., "Possible Cancer Hazards presented by Feeding Diethylstilbestrol to Cattle," presented to Symposium on Medicated Feeds; reprod. in Congressional Hearings on Food Additives, 1957-8, pp. 283-5.

8 George McGrath, *The Terrible Truth About the Food You Eat*, (Milwaukee, Wis., reprint, Lee Foundation for Nutritional Research).

9 Clive M. McCay, Ph.D., "Nutritional Experiments on Longevity," *Journal of the American Geriatric Society*, Vol. 6, No. 3, March, 1958.

10 John T. Dingell, Congressman, Mich., testimony at Congressional Hearings on Color Additives, 1960, p. 288.

11 Anthony M. Gawienowski, H. W. Knoche and Herbert C. Moser, summary of paper before American Chemical Society meeting, Div. of Biological Chemistry, Sept. 14, 1960.

12 *Newsweek*, Jan. 11, 1960.

13 *Natural Food and Farming Magazine*, Apr., 1960, p. 19.

13a Franklin Bicknell, M.D., *Chemicals in Food and Farm Produce: Their Harmful Effects*, (London, Faber and Faber, 1960), pp. 77-8.

14 *Journal of the American Medical Association*, Aug. 25, 1958; "The Preservation of Red Meat, Poultry and Fish with Chlortetra-Cycline," *Nutrition Abstracts and Reviews*, Vol. 30, No. 1, Jan., 1960; *Food, Drug and Cosmetic Law Journal*, Vol. 12, 1957, p. 451; Joint Conference on Chemical Additives in Food, *Food, Drug, and Cosmetic Law Journal*, Vol. 12, 1957, p. 451.

15 Bruce W. Halstead, M.D., "Poisonous Fishes," *Public Health Reports*, College of Medical Evangelists, Loma Linda, Calif., Vol. 73, No. 4, Apr., 1958.

15a Hepatitis was traced to eating raw shell fish found on the Atlantic coast. *New York Herald Tribune*, June 21, 1961.

16 Joe D. Nichols, M.D., "A Concept of Totality," *Natural Food and Farming Magazine*, Digest No. 1.

17 D. T. Quigley, M.D., *The National Malnutrition*, (Milwaukee, Wis., Lee Foundation for Nutritional Research, 1943).

18 De Forest C. Jarvis, M.D., letter to the author Oct. 24, 1958.

19 William Longgood, *The Poisons in Your Food*, (New York, Simon and Schuster, Inc., 1960), p. 3.

20 *New York Times*, Aug. 17, 1957.

21 Ray Sawyer, "Ice Cream" (n title, words "ice cream" are

crossed out and word "poison" substituted), *Natural Food and Farming Magazine,* Nov., 1958.

21a W. C. Hueper, M.D., "Potential Role of Non-Nutritive Food Additives and Contaminants as Environmental Carcinogens," *Archives of Pathology,* Vol.62, 1956, pp. 218-49.

22 "The Last Word (Medically and Gastronomically) on Meat Cooking," *House Beautiful,* Aug., 1958; (reprints available from *House Beautiful,* 572 Madison Ave., New York). Note: If charcoal broilers are upright instead of flat, smoke apparently does not harm the food.

23 G. Burroughs Mider, M.D., "The Role of Certain Chemical and Physical Agents in the Causation of Cancers," Report prepared at request of Secretary Arthur S. Flemming, U.S. Dept. of Health, Education and Welfare and presented in support of retaining the Delaney anti-cancer clause, at Congressional Hearings on Color Additives, 1960, pp. 45-9.

24 Thomas Carney, M.D., testimony before Congressional Hearings on Color Additives, 1960, p. 272.

25 Geoffrey Martin, M.D., letter submitted to Congressional Committee Investigating Color Additives, 1960, p. 248.

26 Vance Packard, *The Hidden Persuaders,* (New York, David McKay Co., Inc., 1957).

27 Margaret Haake, *Modern Nutrition,* Apr., 1959.

28 Federation of Homemakers, 5610 16th St., N. Arlington, Va.; National Health Federation, 2400 16th St. N.W., Washington, D.C.; Consumers Union of U.S., 256 Washington St., Mt. Vernon, N.Y. and others.

29 William E. Smith, M.D., testimony before Congressional Committee on Food Additives, 1958, p. 173.

30 William Coda Martin, M.D., testimony before Congressional Committee Investigating Food Additives, 1958, p. 279.

31 George Larrick, Commissioner of Food and Drug Administration, address to Livestock Conference, American Farm Bureau Federation, Chicago, Ill., Dec. 14, 1959.

32 *Modern Nutrition,* Jan., 1958.

33 William E. Smith, M.D., testimony before Congressional Committee Hearing on Food Additives, 1957-8, charging pressures were exerted against cancer research at National Cancer Institute, after which research was dropped (p. 172); also charging cancer researchers lost their jobs because research findings were contrary to vested interests (pp. 175-92); John D. Dingell, Congressman, Mich., testifying regarding punitive threats against Dr. George J. Wallace, Professor of Zoology, Michigan State Univ., after his testimony during the Pesticides Coordination Bill Hearing, 1960, pp. 76-7; Barbara Moulton, M.D., research from Bureau of Medicine, Federal Drug Administration, in testimony before Congressional Committee on Administered Prices in the Drug Industry, 1960, p. 12020,

". . . the trends within the agency . . . which to me represented a deliberate neglect of the interest of the consumer and an unwillingness to make policy decisions honestly on the basis of scientific fact . . . finally convinced me that I could not remain with an easy conscience unless there were to be a radical change in policy."

34 Charlotte Carter, R.N., R.H.N., and Dyson Carter, M.Sc., R.C.G.S., *Cancer, Smoking, Heart Disease, Drinking in our Two Worlds Today,* (Toronto, Northern Book House, 1957).

35 James J. Delaney, Congressman, Queens, N.Y., statement in an article, "How Safe Are the Chemicals in Your Foods?" *Redbook,* Dec., 1958.

CHAPTER 10

1 *New York Journal-American,* March 25, 1960.

2 "Environment Vs. Man—Subtle New Pollutants Endanger Health," *Time,* Sept. 26, 1960.

3 Allan Phillips, "Pollution," *MacLean's, Canada's National Magazine,* Sept. 10, 1960.

4 U.S. Dept. of Health, Education and Welfare, Public Health Service, "Research in Water Supply and Water Pollution at the Robert A. Taft Sanitary Engineering Center," *Technical Report,* No. W 59-3; "These Precious Days," *New Yorker,* Nov., 1959.

5 *Science Newsletter,* Oct. 31, 1959.

6 "The Cereal Grains—Some of Their Special Characteristics," (Milwaukee, Wis., reprint No. 38-B, Lee Foundation for Nutritional Research).

7 Alvin R. Toffler, "Danger in Your Drinking Water," *Good Housekeeping,* Jan., 1960.

8 "These Precious Days," *New Yorker,* June 6, 1959.

9 "Burial of Atomic Waste at Sea Called Perilous," *New York Times,* Feb. 1, 1960.

10 David Shea Teeple, "Radioactive Waste—A Peril of the Atomic Age," *Human Events,* Vol. 16, No. 9, March 4, 1959.

11 Grace Des Champs, "The Battle of the Atomic Garbage Pit," *The Skipper Magazine,* Jan., 1960; Walter Schneir, "The Atom's Poisonous Garbage," *The Reporter,* March 17, 1960.

12 Chauncey D. Leake, M.D., Dean of the College of Medicine, Ohio State Univ., address before National Conference on Water Pollution, Washington, D.C., Dec., 1960.

13 F. B. Exner, M.D. and G. I. Waldbott, M.D., *The American Fluoridation Experiment,* (New York, The Devin-Adair Co., 1957); Philip R. N. Sutton, D.D.S., *Fluoridation Errors and Ommissions in Experimental Trials,* (Melbourne, Australia, University Press, 1959).

14 Robert S. Harris, Ph.D., Massachusetts Institute of Technology, testimony before Congressional Committee Investigating Chemicals in Food and Cosmetics, Sec. 3, 1952, pp. 1517-21; original Harris research, *Archives of Biochemistry*, Vol. 26, No. 1, 1950, p. 155, and *New England Journal of Medicine*, Vol. 244, 1951, p. 361.

15 N. Philip Norman, M.D., *The Triad Disease*, (Milwaukee, Wis., Lee Foundation for Nutritional Research, 1958), p. 83.

15a To Whom It May Concern:

"I, Oliver Kenneth Goff, was a member of the Communist Party and the Young Communist League, from May 2, 1936, to October 9, 1939. During this period of time, I operated under the alias of John Keats and the number 18-B-2. My testimony before the Government is incorporated in Volume 9 of the Un-American Activities Report for the year 1939.

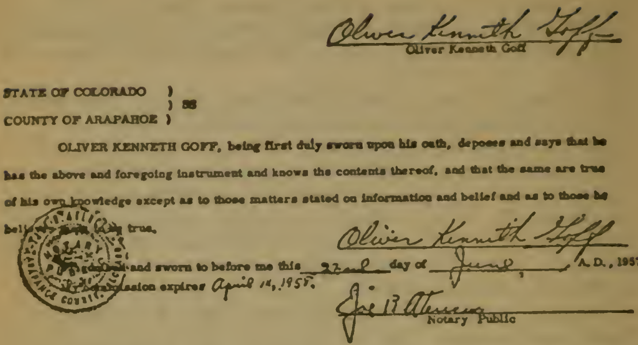
While a member of the Communist Party, I attended Communist underground training schools outside the City of New York; in the Bues Hall, and 113 East Wells Street, Milwaukee, Wisconsin. The East Wells Street School operated under the name of the Eugene Debs School. Here, under the tutoring of Eugene Dennis, M. Sparks, Morris Childs, Jack Kling and others, we were schooled in the art of revolutionary overthrow of the established Government.

We were trained on how to dismantle and assemble mimeograph machines, to use for propaganda purposes during the revolution; how to work on guide wires and fuel lines of airplanes so that they would either burst into flames or crash to the ground because of lack of control; how to work on ties and rails to wreck trains; and also the art of poisoning water supplies.

We discussed quite thoroughly the fluoridation of water supplies and how we were using it in Russia as a tranquilizer in the prison camps. The leaders of our school felt that if it could be induced into the American water supply, it would bring-about a spirit of lethargy in the nation; where it would keep the general public docile during a steady encroachment of Communism. We also discussed the fact that keeping a store of deadly fluoride near the water reservoir would be advantageous during the time of the revolution, as it would give us opportunity to dump this poison into the water supply and either kill off the populace or threaten them with liquidation, so that they would surrender to obtain fresh water.

We discussed in these schools, the complete art of revolution: the seizure of the main utilities, such as light, power, gas, and water; but it was felt by the leadership, that if a program of fluoridating of the water could be carried out in the nation, it would go a long way toward the advancement of the revolution.

The above statements are true."



Oliver Kenneth Goff
Oliver Kenneth Goff

STATE OF COLORADO)
) SS
COUNTY OF ARAPAHOE)

OLIVER KENNETH GOFF, being first duly sworn upon his oath, deposes and says that he has the above and foregoing instrument and knows the contents thereof, and that the same are true of his own knowledge except as to those matters stated on information and belief and as to those he bel[illegible] true.

Oliver Kenneth Goff

[illegible] and sworn to before me this 22nd day of June, A.D., 1957,
[illegible] expires April 14, 1958.

Notary Public

16 James G. Kerwin, D.D.S., "Possible Hazards of Strontium 90 and Fluoridation," *Dental Digest*, Feb., 1958.

17 *Bulletin of the National Academy of Medicine in France*, Vol. 140, 1956, pp. 529-31.

18 *Journal of Applied Nutrition*, Vol. 12, No. 4, 1959, p. 142.

19 Cal-Min is a natural non-animal calcium produced by Schiff Bio-Foods, South Hackensack, N.J.

20 Joe D. Nichols, M.D., National President, Natural Food Associates, Atlanta, Tex.

21 Clive M. McCay, Ph.D., "Use and Abuse of Nutrition Research," *Natural Food and Farming*, Vol. 5, No. 2, May, 1958.

22 "These Precious Days," *New Yorker*, March 5, 1960.

23 Impure Air Linked to Fatal Diseases," *New York Times*, June 3, 1960.

24 "Long Fight Is Seen on Air Pollution," *New York Times*, Nov. 3, 1960.

25 Interview with Wilhelm C. Hueper, M.D., Chief of Environmental Study of Cancer, National Cancer Institute, "Lung Cancer: Danger in the Air," *Newsweek*, Jan. 11, 1960.

26 John W. Slocum, "Crops Damaged by Air Pollution," *New York Times*, Nov. 8, 1959.

27 R. D. Chisholm, *Journal of Economic Entomology*, 1950.

28 Donald Lewis Maden, *Effects of Humus of Different Origins in Moderating the Toxicity of Biocides: (Poisons in the Soils)*, (Madison, Wis., University of Wisconsin Press).

29 "Radiation Limits Reduced by Atomic Energy Commission," *New York Times*, Sept. 7, 1960.

30 Harold M. Schmeck, Jr., "Radiation 'Load' in Man is Sought," *New York Times*, July 10, 1960.

31 "These Precious Days," *New Yorker*, Oct. 31, 1959.

32 "These Precious Days," *New Yorker*, Jan. 30, 1960.

33 "These Precious Days," *New Yorker*, June 20, 1959.

34 George P. Larrick, Commissioner, address before the Food Law Institute conference, Washington, D.C., Nov. 28, 1960.

35 "Fallout in Our Milk, A Follow-Up Report," *Consumer Reports*, special issue, Feb., 1960.

36 Robert K. Plumb, "Fall-Out Iodine Is Found in Milk," *New York Times*, June 21, 1959.

37 Arthur S. Flemming, statement at briefing conference, Washington, D.C., Apr. 27, 1960.

38 "'Radioactive Rise in Food is Small; U.S. Finds Increase Since '45 Minor—Tea Affected Most, But is Found Safe," *New York Times*, Oct. 16, 1958.

39 "Tea is Held Antidote for Strontium 90," *New York Times*, July 19, 1959.

40 "Rise in Strontium is Found in Young," *New York Times*, Apr., 1959.

41 "These Precious Days," *New Yorker*, May 16, 1959.

42 E. Lapp., *Fallout*, (New York, Basic Books, Inc., 1960).

43 *South African Medical Journal*, July, 1958; University of British Columbia report, *New York Times*, May 12, 1957.

44 "Expert Minimizes Fall-Out in Milk," *New York Times*, May 31, 1960.

45 *Consumer Reports*, Feb., 1960.

46 "These Precious Days," *New Yorker*, Oct. 3, 1959.

45 R. H. Wasserman, "Contamination of Foods by Fallout," *New York State Journal of Medicine*, Dec. 1, 1960, pp. 3857-62.

48 *Science Newsletter*, Vol. 78, Aug. 13, 1960, p. 104.

49 "Fruit Found Low in Strontium 90—Fallout Particles Tend to Fall off Smooth Skins, U.S. Diet Study Shows," *New York Times*, Sept. 3, 1960.

49a *Journal of the American Medical Association*, Nov. 18, 1962.

50 Gladys W. Royal, *Modern Nutrition*, Nov., 1960, p. 11.

51 Lawrence E. Davies, "Oils Used to Fight Radiation in Mice," *New York Times*, May 11, 1960; "Oil Treatment Aids Radiation Victims," *Idem* May 17.

51a Nutrition Abstracts and Review. Vol 31, No 3 (#4258).

52 R. D. Barnard, M.D., and J. F. Barnard, M.D., *Lancet*, Sept. 8, 1956.

53 *Journal of the National Cancer Institute*, Aug., 1951.

54 *New York Herald Tribune*, Feb. 17, 1959.

55 "Black Mica Tested as Food Supplement to Fight Radiation," *New York Times*, Apr. 21, 1960.

56 "These Precious Days," *New Yorker*, July 11, 1959.

57 Report on TV Radiation.

There is a certain amount of radiation from everything in nature. This is known to scientists as background radiation. Only when radiation becomes excessive do scientists become concerned. One source of radiation is television sets. Dr. Carl B. Braestrup, registered X-ray physicist, tested the amount of this radiation from TV sets at the request of the Electronic Industries Association.

The amount of radiation considered safe in 1950 was 6.25 milliroentgens (mr.) per hour (hr.) if tubes operated at or below 16KV. "Since that time," says the report issued as a result of Dr. Braestrup's findings, "the maximum ratings for voltages and currents have been raised in TV sets and the maximum safe radiation exposure level has been reduced to 2.5 mr./hr., and will probably be further reduced to 0.5 mr./hr. (when measured 5 centimeters—approximately 2 inches—from any accessible surface of a television set). This limit is intended to protect future generations and it does not necessarily follow that a higher level will cause radiation injuries to any individual."

One means of cutting down radiation in TV sets is through the safety glass. Another means of diluting is radiation absorption by the cabinet itself. Dr. Braestrup measured radiation from TV sets without benefit of either the safety glass or the cabinet. In other words he measured it "straight" or in undiluted form. He found that under normal operating conditions, at 5 cm., the radiation could comply with the exposure limit considered safe, of 0.5 mr./hr.

As you recede from your TV set, radiation falls off sharply. At 100 cm. (about 20 inches) there is 12 times less radiation than at 5 cm. (about 2 inches).

At 200 cm. (about 40 inches) away, radiation is only 1/50 of what it was at the distance of 5 cm., or two inches away. If you sit still farther back from the set, say at 500 cm., which is about 200 inches or roughly 16 feet, you will receive approximately 1/300 of the amount of radiation which occurs at 5 centimeters.

It has been estimated that if the value of 0.5 mr./hr. is not exceeded, the average dose to the population due to television will be less than 2% of the normal background radiation. This study indicates, therefore, in order to avoid unnecessary exposure that we should keep children as well as ourselves, as far back from the TV set as possible without creating eyestrain.

58 *Consumer Reports*, Feb., 1960.

CHAPTER 11

1 *San Jose Mercury*, October 29, 1960.

1a Cathryn Elwood, *Feel Like a Million*, (New York, The Devin-Adair Co., 1956); Agnes Toms, *Eat Drink and Be Healthy*, (New York, The Devin-Adair Co., 1962); Beatrice Trum Hunter, *The Natural Foods Cookbook*, (New York, Simon and Schuster, Inc., 1961); Carlton Fredericks, Ph.D., with Hazel Meyer, *Carlton Fredericks' Cookbook for Good Nutrition*, (Philadelphia, J. B. Lippincott Co., 1960).
2 Clive M. McCay, Ph.D., "Use and Abuse of Nutrition Research," *Natural Food and Farming Magazine*, Vol. 5, No. 2, 1958.
3 National Dietary Foods Association, 1542 Knowlton St., Cincinnati, Ohio.
4 For details, write Walter Clark, North Country School, Lake Placid, N.Y.; boarding school accommodating 50 boys and girls, 8-14 years.
5 For details, write Peter Sammartino, President, Fairleigh-Dickinson University, Rutherford, N.J.
6 For list of books available through the lending library service, write Mrs. Mildred S. Hatch, 8 Pine St., St. Johnsbury, Vt., enclosing self-addressed, stamped envelope.
7 Publications include; *Compost Science*, Emmaus, Penna.; *Consumer Reports*, Consumers' Union, Mount Vernon, N.Y.; *Journal of Clinical Physiology*, P.O. Box 496, Atlanta, Tex.; *Herald of Health*, 709 Mission St., San Francisco, Calif.; *Bio-Dynamics*, Bio-Dynamic Farming and Gardening Association, Inc., Chester, R.D. 1, Penna.; *Mother Earth*, Soil Association, 8-F Hyde Park Mansions, Marlylebone Rd., London, N.W. 1, *National Health Federation Bulletin*, National Health Federation, 709 Mission St., San Francisco, Calif.; *Modern Nutrition*, American Nutrition Society, 10651 W. Pico Blvd., Los Angeles, Calif.; *Organic Gardening and Farming Magazine*, and *Prevention*, Emmaus, Penna.; Federation of Homemakers, 5610 16th St. N., Arlington, Va.; *Natural Food and Farming Magazine*, Atlanta, Tex.

CHAPTER 12

1 Roger J. Williams, Ph.D., *Alcoholism: The Nutritional Approach*, (Austin, Tex., University of Texas Press, 1959).
2 D. T. Quigley, M.D., *The National Malnutrition*, (Milwaukee, Wis., Lee Foundation for Nutritional Research, 1943).
3 L. Stambovsky, *The Need for Vitamins*, (Milwaukee, Wis., reprint No. 31, Lee Foundation for Nutritional Research); see John J. Miller, "Vitamin Antagonists," *Overfed But Undernourished*, (New York, The Exposition Press, 1959); "What Are the Foes of Vitamins?," *Prevention*, Nov., 1958, p. 68; Michael Rabben, D.D.S., "Fundamentals of Food Metabolism," *Modern Nutrition*, Vol. 12, 1959, No.'s 5-10.

4 J. B. Hendricks, A. F. Morgan, R. M. Freytag, "Chronic Moderate Hyper-Vitamosis D in Young Dogs," *American Journal of Physiology*, Vol. 149, May, 1947, pp. 319-32.

5 Roger J. Williams, Ph.D., *What to Do About Vitamins*, (Norman, Okla., University of Oklahoma Press, 1946), p. 14.

6 Adelle Davis, *Let's Eat Right to Keep Fit*, (New York, Harcourt, Brace & Co., Inc., 1954).

7 *New Zealand Medical Journal*, August 1956.

8 Dept. of Pediatrics, Ohio State Univ., and Sansum Clinic, Calif., both 1958.

9 From a letter to the author Sept. 13, 1960; also "The Effect of Imbalance in the 'Filtrate Fraction' of the Vitamin B Complex in Dogs," *Science*, March 14, 1941; M. R. Richards, "Imbalance of Vitamin B Factors," *British Medical Journal*, March 31, 1945; see also quotes from Charles A. Mills, M.D., in note 5, Ch. 9.

10 *Journal of the American Medical Association*, May 3, 1941; *American Journal of Clinical Nutrition*, July-Aug., 1960, p. 478.

11 Raymond Bernard, Ph.D., *The Organic Revolution in Nutrition*, (Milwaukee, Wis., The Lee Foundation for Nutritional Research).

12 Michael Rabben, D.D.S., "Fundamentals of Food Metabolism," *Modern Nutrition*, Vol. 2, No. 9, Sept., 1959.

13 *Internationale Zeitschrift für Vitaminforschung*, Vol. 22 1959, pp. 199-205.

14 Albert Q. Maisel, "Capsulated Vitamins," *Everywoman's-Family Circle*, Nov., 1959.

15 Morton S. Biskind, M.D., "The Technic of Nutritional Therapy," *American Journal of Digestive Diseases*, Vol. 20, No. 3, March, 1953.

15 Michael J. Walsh, Sc.D., F.R.I.C., "Insidious Threat to Survival," *Journal of Applied Nutrition*, Vol. 13, No. 2, Apr., 1961, pp. 110-11.

16 *Nutritional Abstracts and Reviews*, Oct., 1959, p. 5431.

17 Curtis Wood, Jr., M.D., *Overfed But Undernourished*, (New York, The Exposition Press, 1959).

17a H. M. Sinclair, M.D., *Lectures on the Scientific Basis of Medicine*, Vol. 6, 1956-57.

18 D. T. Quigley, M.D., "Diet Deficiency in Everyday Life," lecture before American Nutrition Society convention, May, 1953, reprint in *Modern Nutrition*, September, 1953, available from Lee Foundation, reprint No. 63, Milwaukee, Wis.

19 Tom D. Spies, M.D., *Rehabilitation Through Nutrition* (Philadelphia, Penna., W. B. Saunders, 1947); also *Journal of the American Medical Association*, June 7, 1958.

20 *Scandinavian Veterinary*, Vol. 30, 1940, pp. 1121-43.

21 *Journal of Nutrition*, Vol. 21, 1941, p. 609.

22 *American Journal of Digestive Diseases*, Jan., 1940.
23 *U.S. Army Nutritional Manual*, 1949.
24 A. J. Carlson, *Science*, Vol. 97, Apr. 30 and May 7, 1943.
25 For sources, see advertisements in *Prevention* magazine, Emmaus, Penna.
26 Robert L. McCarrison, M.D., *(Oxford Medical Publication*, 1921), available from Lee Foundation for Nutritional Research, Milwaukee, Wis.

CHAPTER 13

1 D. T. Quigley, M.D., *The National Malnutrition*, (Milwaukee, Wis., Lee Foundation for Nutritional Research 1945).
2 Weston A. Price, D.D.S., *Nutrition and Physical Degeneration*, (Milwaukee, Wis., Lee Foundation for Nutritional Research, 1945).
3 *U.S. Department of Agriculture Yearbook on Food*, 1959, pp. 122-3.
4 Michael Rabben, D.D.S., "Fundamentals of Food Metabolism, *Modern Nutrition*, Vol. 12, No. 9, Sept., 1959.
5 *Report*, Merck and Co., 1949.
6 Melvin C. Page, D.D.S., *Degenerative-Regeneration*, (St. Petersburg, Fla., Page Foundation for Biochemical Research, 1949).
7 Clive M. McCay, Ph.D., "A Simplified Nutrition Program for the Latter Half of Life," *Journal of the American Geriatric Society*, Vol. 2, No. 7, July, 1954.
8 Andre Voisin, *Soils, Grass and Cancer*, (New York, Philosophical Library, 1959); also William Albrecht, *Soil, Fertility and Animal Health*, (Webster City, Iowa, Fred Hahne Publications, 1959); D. C. Jarvis, M.D., *Folk medicine* (New York, Henry Holt Inc., 1958).
9 Adelle Davis, *Let's Eat Right to Keep Fit*, (New York, Harcourt, Brace & Co., Inc., 954), p. 188.
10 *Ohio State Medical Journal*, Vol. 52, No. 10, Oct., 1956.
11 Royal Lee, D.D.S., "Bonemeal—Nutritional Source of Calcium," (Milwaukee, Wis., bulletin No. 3-53, Lee Foundation for Nutritional Research).
12 Irvine McQuarrie, M.D., *Modern Nutrition*, Feb., 1959.
13 William N. McCartney, M.D., *Fifty Years A Country Doctor*, (New York, E. P. Dutton & Co., Inc., 1938).
14 Clive M. McCay, Ph.D., as reported in *Health Saver*, Spring, 1958, p. 54.
15 *Health Saver*, Summer, 1960, p. 47; one source of egg calcium or Chalaza, is Cal-Forte, produced by Schiff Bio-Food Products, Hackensack, N.J.
16 Ann Peters, "How Important is Calcium?," *Pageant*, Dec., 1959.

17 Harold L. Perlenfein, *A Survey of Vitamin F,* (Milwaukee, Wis., Lee Foundation for Nutritional Research), pp. 26-27.
8 Brown Landone, "Make Cells Grow Younger," *Nautilus Magazine;* quoted by Robert Collier, *Law of the Higher Potential,* (Tarrytown, N.Y., Collier Pub., 1947), p. 232.
19 Graves and Miller, Agricultural Experiment Station, Beltsville, Md.
19a Benjamin Harrow and Abraham Mazur, *Textbook of Biochemistry,* ((Philadelphia, 1958, 7th Ed.).
20 *American Journal of Orthodontics and Oral Surgery,* Aug., 1946.
21 H. E. Kirschner, M.D., *Live Food Juices,* (Monrovia, Calif., Kirschner Publ. Co., 1960).
22 Fred D. Miller, D.D.S., *Open Door to Health,* (New York, The Devin-Adair Co., 1959).
23 Ralph Bircher, *A Turning Point in Nutritional Science,* (Milwaukee, Wis., reprint No. 80, Lee Foundation for Nutritional Research).
24 James B. Sumner, Ph.D., Nobel Prize Winner, 1946, *The Secret of Life-Enzymes,* (available from National Enzyme Co., 5067 Madison St., Chicago 44, Ill.).
25 Edward Howell, "Status of Food Enzymes in Digestion and Metabolism," (avialable in Library of Congress and medical libraries).

CHAPTER 14

1 Adapted from *U.S. Department of Agriculture Yearbook on Food,* 1959; also Ancel and Keys, *Eat Well to Say Well* (New York, Doubleday & Co., Inc., 1959).
2 Philip S. Chen, M.D., *Heart Disease—Cause, Prevention and Recovery,* (South Lancaster, Mass., The Chemical Elements, 1958).
3 N. T. Werthessen, "Controls of Aortal Lipid Metabolism and Lipid Movement by Hormones and Vitamins," *Hormones and Atherosclerosis,* (New York, Academic Press, 1959).
4 *Science Newsletter,* Feb. 20, 1960.
5 Philip Norman, M.D., *The Triad Disease* (Milwaukee, Wis., Lee Foundation for Nutritional Research, 1958).
6 Adelle Davis, "Keep Your Heart Young," *Modern Nutrition,* Feb., 1959; also Michael Rabben, D.D.S., "Fundamentals of Food Metabolism," *Modern Nutrition,* Aug., 1959; also *Modern Nutrition,* Feb., 1959, p. 28.
7 Burr and Burr, *Journal of Biological Chemistry,* Vol. 82, 1929, p. 345.
8 H. M. Sinclair, M.D., *Lancet,* April 7, 1955.

8a Edward H. Ahrens, M.D., (Rockefeller Institute), Science Section, *New York Times*, May 7, 1961.

9 Bronte-Stewart, M.D., quoted in *The Triad Disease* (Milwaukee, Wis., Lee Foundation for Nutritional Research, 1958), p. 5.

10 Robert E. Olson, M.D., Graduate School of Public Health, University of Pittsburgh, Pittsburgh, Penna.

11 *Canadian Medical Journal*, January 2, 1960.

12 Joseph N. Looney, Ph.D., biochemist, Boston, Mass.

12a *Modern Nutrition*, Vol. 14, May, 1961, p. 6.

13 *Science Newsletter*, Vol. 78, Sept. 10, 1960, p. 174.

13a *American Journal of Clinical Nutrition*, Vol. 9, May-June, 1961, p. 351.

14 Marvin A. Siperstein, M.D., Southwestern Medical School, Dallas, Tex.

15 Joe D. Nichols, M.D., "Dietary Management of Atherosclerosis," *Clinical Psychology*, Vol. 1, No. 2, Fall, 1959; "Scientific Suicide," *Natural Food and Farming*, April, 1958. See also Note 8a.

16 Eleazar Shafrir, M.D., visiting scientist from Israel, and Daniel Steinberg, M.D., chief, metabolism section, National Heart Institute; *Science Newsletter*, Jan. 9, 1960.

17 Meyer Friedman, M.D., *Science Newsletter*, Nov. 7, 1959.

18 *Science Newsletter*, April 28, 1956.

19 *Modern Nutrition*, July, 1960.

20 *British Medical Journal*, Aug. 13, 1960.

21 *American Journal of Clinical Nutrition*, Vol. 7, 1959, pp. 139-45.

22 Melvin E. Page, D.D.S., *Degeneration-Regeneration*, (St. Petersburg, Fla., Page Foundation for Bio-Chemical Research).

23 Lester M. Morrison, M.D., *The Low Fat Way to Health and Longer Life*, (Englewood Cliffs, N.J., Prentice-Hall, Inc., 1958). Author's note:—I wish, in the light of newer information, that Dr. Morrison's book had been entitled not the "low fat," but the "medium fat," way to health, since this approach is now considered the safest route.

24 Friedman, Byers and Rosenman, M.D.'s, quoted in Lester M. Morrison, M.D., *The Low Fat Way to Health and Longer Life*, (Englewood Cliffs, N.J., Prentice-Hall, Inc., 1958).

25 Richard L. Chipman, "Nutrition in Relation to the Heart," *Journal of Medical-Physical Research*, Vol. 22, No. 2, September-October, 1953; also Choline research by Walter Stanley Hartroft, M.D., Washington Univ., Niacin research by William P. Parsons, Jr., M.D., Jackson Clinic, Madison, Wis.

26 *American Journal of Clinical Nutrition*, May-June, 1960, p. 321.

27 W. J. McCormick, M.D., "Coronary Thrombosis: A New

Concept of Mechanism and Etiology," *Clinical Medicine*, Vol. 4, No. 7, July, 1957.

28 Leo Gitman, M.D., Messinger Research Laboratories, Bethel Hospital, Brooklyn, N.Y.

29 N. Dungal, M.D., Univ. of Iceland.

30 *Nature*, Apr. 25, 1959.

31 Alton E. Bailey, *Industrial Oil and Fat Products*, (New York, Interscience Publishers, Inc., 1951).

32 Reported by Earl Ubell, *New York Herald Tribune*, Apr. 14, 1959.

33 Luigi Matarese, "The Superior Frame Value of Virgin Olive Oil," *Modern Nutrition*, Sept., 1960.

34 Edward H. Ahrens, Jr., M.D., and co-workers at Rockefeller Institute, *Journal of the American Medical Association*, Vol. 170, Aug., 1959, pp. 2198-203.

35 Adelle Davis, *Let's Eat Right to Keep Fit* (New York, Harcourt, Brace & Co., Inc., 1954), p. 42

CHAPTER 15

1 *Journal of the American Medical Association*, July 14, 1951.

2 Adelle Davis, *Let's Cook It Right*, (New York, Harcourt, Brace & Co., Inc., 1947).

3 Gustav Martin, M.D., Warner Institute of Therapeutic Research.

4 "The Wulzen Calcium Syndrome in Guinea Pigs," *American Journal of Physical Medicine*, Vol. 34, No. 1, Feb., 1955.

5 Adelle Davis, *Let's Eat Right to Keep Fit*, (New York, Harcourt, Brace & Co., Inc., 1954), p. 188.

6 Shepard Shapiro, M.D., "Control of Antibiotic-Induced Gastro-intestinal Symptoms with Yogurt," *Clinical Medicine*, Feb., 1960. pp. 295-301.

7 Francis W. Pottenger, Jr., M.D., Michael J. Walsh, M.Sc., F.R.I.C., "Open Forum on Milk," *Modern Nutrition*, July, 1960.

8 *Lancet*, Feb. 2, 1957.

9 William MacNider, M.D., Univ. of North Carolina Medical School.

10 Sources for international yogurt culture include International Yogurt Co., 8478 Melrose Pl., Los Angeles, Calif., which also manufactures Therma-Cult, an electric yogurt incubator; Schiff Bio-Food Products, Hackensack, N.J., manufactures Forti-Lac, a wafer or powder similar to yogurt.

11 Francis P. Ferrer, M.D. and Linn J. Boyd, M.D., "Effect of Yogurt with Prune Whip on Constipation," American Journal of Digestive Diseases, Sept., 1955.

12 Dr. Orla-Jensen, *Dairy Bacteriology*, 1935.

13 *Federal Register,* October 29, 1959; also statement by U.S. Food and Drug Administration, Oct. 29, 1959.

14 Mail order companies for these products include advertisers in *Natural Food and Farming Magazine,* Natural Food Associates, Atlanta, Tex.; also *Organic Gardening and Farming Magazine, Prevention and Organic Foods Directory* (all pub. in Emmaus, Penna.).

15 Thomas K. Cureton, Jr., Director of Physical Fitness, Univ. of Illinois.

16 Results of test available from Viobin Laboratories, Monticello, Ill.; also reports of successful treatment of neuromuscular disturbances, using wheat germ oil: *Journal of Neurology, Neurosurgery and Psychiatry,* Vol. 14, 1951, p. 95.

17 *Journal of American Medical Association,* Oct. 8, 1955.

18 James Rorty and N. Philip Norman, M.D., *Tomorrow's Food,* (New York, The Devin-Adair Co., 1955).

19 Compiled from *Yeast;* edited by Anheuser-Busch, Inc., St. Louis, Mo.

20 *Journal of Nutrition,* July 10, 1951.

21 *Nutritional Abstracts and Reviews,* No. 1331, Jan., 1958, p. 282.

22 Bicknell and Prescott, *Vitamins in Medicine,* (New York, Grune and Stratton, 1953).

23 M. A. Bridges, M.D., Dietetics for the Clinician, (Philadelphia, Lee and Febiger, 1933).

24 Study sponsored by Committee on Nutritional Aspects of Aging; Foods and Nutrition Board, National Research Council.

25 Journal of Nutrition, Dec., 1942, p. 585.

26 James Rorty and N. Philip Norman, M.D., *Tomorrow's Food,* (New York, The Devin-Adair Co., 1956), p. 162.

27 Biochemical Research Laboratory, Spring Valley, N.Y., independent chemical analysis of six different yeasts confirmed Red Star Natural B Complex yeast as nutritionally superior Apr., 1960).

28 *Proceedings of the Society for experimental Biology and Medicine,* Vol. 99, 1958, pp. 262-65; B. L. Reid, Vol. 97, 1958, p. 590; Bieri, Briggs and Scott, Vol. 95, 1927, p. 621; B. G. Creech, *Journal of Nutrition,* Vol. 64, 1958, p. 55.

29 Information on Brewer's yeast prices, Mrs. Mildred S. Hatch, 8 Pine St., St. Johnsbury, Vt. (send self-addressed envelope).

30 *Geriatrics,* Jan., 1958.

31 Lester M. Morrison, M.D., *The Low Fat Way to Health and Longer Life,* (Englewood Cliffs, N.J., Prentice-Hall Co., Inc. 1958), p. 65.

32 John J. Sampson, M.D., laboratory animals study at Univ.

of California, San Francisco; also Department of Biochemistry, University of Nebraska, College of Medicine, study on older patients, aged 70-90. Lecithin produced some fall in blood pressure and greater alertness. The study suggests results might be even greater with young people.

33 Meyer Friedman, Sanford Byers and Ray Rosenman, M.D.'s, study reported by Lester Morrison, M.D., *The Low Fat Way to Health and Longer Life,* (Englewood Cliffs, N.J., Prentice-Hall Co., Inc., 1958).

34 Francis M. Pottenger, Jr., M.D., "The Therapeutic Value of a Thermolabile Factor Found in Fats, Particularly Lecithins in Dermatoses," *Transactions of the American Therapeutic Society,* Vol. 43.

35 *New York Journal of Medicine,* Nov. 15, 1950.

36 Fairchild and Foster.

37 Raymond Bernard, Ph.D., *The Secret of Rejuvenation,* (Mokelumne Hill, Calif., The Health Research).

38 Carlton Fredericks, Ph.D., a study.

39 Glidden Co., a study.

40 *Southern Medical Journal,* Aug., 1950.

41 Weston Price, D.D.S., *Nutrition and Physical Degeneration,* (Milwaukee, Wis., Lee Foundation for Nutritional Research, 1945).

42 Paul de Kruif, "Your Liver is Your Life," *Reader's Digest,* Jan., 1958.

43 Benjamin Ershoff, M.D., "Nutrition and Endurance," *Research Reviews,* Nov., 1952, Office of Naval Research, Dept. of the Navy, Washington, D.C.

44 Walnut Acres, Penns Creek Penna.

45 *Nutrition Abstracts and Reviews,* July, 1958, p. 769.

46 *Nutrition Abstracts and Reviews,* Jan., 1958, p. 275.

47 *Nutrition Abstracts and Reviews,* Jan., 1958, p. 275.

48 *Science Newsletter,* Sept. 5, 1959.

49 *Nature, the British Science Journal,* May, 1959.

50 Don Wharton, "Five Swindles to Watch Out For," *Reader's Digest,* Aug., 1958.

51 Raymond Dubois, *The Miracle of Royal Jelly,* (New York, Waldon Press, 1955).

52 E. K. Cruikshank, "Painful Feet Syndromes," *Vitamins and Hormones,* (New York, Academic Press, Inc., 1952); E. S. Gordon, "Pantothenic Acid in Human Nutrition, "*Biological Action of Vitamins,* (Chicago, Ill., University of Chicago Press, 1942), p. 168; Roger J. Williams, Ph.D., "Chemistry and Biochemistry of Pantothenic Acid," *Advances in Enzymology,* Vol. 3, 1943, p. 253.

52a Analysis performed by an independent laboratory; name supplied on request.

53 Mrs. Mildred Hatch, 8 Pine St., St. Johnsbury, Vt.

54 "Milk, a Highly Overrated Food, Actually Harmful to Many," *Consumer Bulletin*, Nov., 1959.
55 H. Leon Abrams, Jr., "More About Milk, the Not-So-Perfect Food," *Family News*, Feb., 1960, Page Foundation of Bio-Chemical Research, St. Petersburg, Fla.
56 J. Sim Wallace, D.D.S., "The Physiology of Oral Hygiene," *Family News*, Vol. 7, No. 2, Feb., 1960, Page Foundation for Bio-Chemical Research, St. Petersburg, Fla.
57 H. M. Sinclair, D.M., M.R.C.P., Vice-President, Magdalena College, Oxford Univ., England.
58 Harold P. Lynch, M.D. and W. D. Snively, Jr., M.D., report to the American Medical Association, Minneapolis, Minn.
59 Michael Rabben, D.D.S., "Is Milk the Perfect Food?," *Family News*, Apr. 1958, Page Foundation, St. Petersburg, Fla.
60 P. M. Coates, J. A. Crighton, S. J. Folley and F. G. Young, *Nature*, 1949; also H. Ucko, *Endocrine Diagnosis* (New York, Staples Press, 1951); also A. Grollman, *Essentials of Endocrinology* (Philadelphia, J. B. Lippincott Co., 1947).
61 N. W. Clein, "Allergy in Infants and Children," *Modern Medicine*, Feb., 1956; *Annals of Allergy*, March-April, 1951.
62 Harold P. Lynch, M.D. and W. D. Snively, Jr., M.D., "Is Your Child Underprivileged?," *Modern Nutrition*, March, 1952; Louis A. M. Krause, address before Maryland Academy of General Practice, scientific session, June 5, 1952.
63 Francis M. Pottenger, Jr., M.D., "What is Milk and What Does It Do for People?," *Modern Nutrition*, Jan., 1953.
64 F. P. Antia and S. H. Cooper, "Chronic Rectal Bleeding," *British Medical Journal*, June 11, 1955.
65 Blake F. Donaldson, M.D., "Sinusitis," address to the Reading, Penna., Eye, Ear, Nose and Throat Society, Nov. 13, 1946.
66 N. Philip Norman, M.D., *The Triad Disease* (Milwaukee, Wis., Lee Foundation for Nutritional Research, 1958).
67 James Rorty and N. Philip Norman, M.D., *Tomorrow's Food*, (New York, The Devin-Adair Co., 1956), p. 102.
68 Raymond W. Bell, *Journal of Biological Chemistry*, Vol. 64, 1925, p. 399; E. C. V. Mattick and H. S. Hallett, *Journal of Agricultural Science*, Vol. 19, 1934, p. 455; H. E. Magee and D. Harvey, *Biochemistry Journal*, Part 2, 1926, p. 883; H. E. Magee and A. E. Glennie, *Biochemistry Journal*, Vol. 22, Part 1, 1928; W. W. Woessner, C. A. Elvehjem and H. A. Schuett, *Journal of Nutrition*, Vol. 18, 1939, p. 626; W. E. Krauss, J. H. Erb and R. G. Washburn, *Ohio Agricultural Experimental Station Bulletin*, Jan., 1933, p. 30; J. A. Ziegler and N. B. Keevil, *Journal of Biological Chemistry*, Vol. 155,

No. 2, 1944, pp. 605-6; H. A. Waissman, *Proceedings of Experimental Biology and Medicine,* Vol. 55, 1944, p. 68.
69 *Lancet,* May 8, 1937, p. 1142.
70 A. F. Hess, "Infantile Scurvy, V. A. Study of Its Pathogenesis," *American Journal of Diseases of Childhood,* Nov., 1917.
71 *Lancet,* May 8, 1937, p. 1142.
72 W. E. Krauss, J. H. Erb, R. G. Washburn, *Ohio Agricultural Experimental Station Bulletin,* Jan., 1933, p. 30.
73 Jean Bullitt Darlington, *Why Milk Pasteurization?* Reprint from *The Rural New Yorker,* 333 West 30th Street, New York, N.Y. 10001.
74 Notably, Walker-Gordon Certified Milk Farm, Plainsboro, N.J.; Roger Jessup Farms, 5431 San Fernando Rd., Glendale, Calif.; Alta-Dena Dairy, 148 W. Jeffries Ave., Monrovia, Calif.
75 *Walker-Gordon Laboratory Bulletin,* Plainsboro, N.J.
75a *Nutritional Abstracts and Reviews,* Jan., 1957, 1830.
76 Clive M. McCay, Ph.D., "The Use and Abuse of Food," *Natural Food and Farming Magazine,* Nov., 1959.

CHAPTER 16

1 Waldemar Kaempffert, "Science in Review," *New York Times.*
2 Roger J. Williams, M.D., *Chemistry Makes the Man,* (New York, John Wiley & Sons, Inc., 1957), quoting Barry J. Anson, *Atlas of Human Anatomy,* (Philadelphia, W. B. Saunders Co., 1950).
3 Roger J. Williams, *Free and Equal,* (Austin, Tex., University of Texas Press, 1953). Also, *Chemistry Makes the Man,* (New York, John Wiley & Sons, Inc., 1957).
4 D. T. Quigley, M.D., *The National Malnutrition,* (Milwaukee, Wis., Lee Foundation for Nutritional Research, 1943).
5 Franklin Bicknell, M.D., *The English Complaint,* (London, William Heinemann, Ltd., 1952).
6 *Archives of Disease in Children,* Vol. 34, p. 140.
7 Adelle Davis, *Let's Eat Right to Keep Fit,* (New York, Harcourt, Brace and Co., Inc., 1954), p. 39.
8 *American Journal of Clinical Nutrition,* Sept.-Oct., 1958.
9 *Modern Nutrition,* June, 1958.
10 *Nutrition Reviews,* Vol. 18, No. 7.
11 W. Henry Sebrell, Jr., M.D., director, Institute of Nutrition Sciences, Columbia University, New York.
12 Paul H. Cannon, *Recent Advance in Nutrition,* (Lawrence, Kan., University of Kansas Press, 1950).
13 E. Geiger, "The Role of the Time Factor in Protein Synthesis," *Science,* Vol. III, June 2, 1950, p. 594.

14 Morton S. Biskind, M.D., "The Technic of Nutritional Therapy," *American Journal of Digestive Diseases,* Vol. 20, No. 3, March, 1953.

15 Olsen, Vester, Gursey, Davis and Longman, "The Effect of Low Protein Diets upon Serum Cholesterol in Man," *American Journal of Clinical Nutrition,* May-June, 1958, p. 310.

15a J. D. Ratcliff, former editor, *Science Yearbook,* "You and Meat in this Protein Era," American Meat Institute, Chicago, June, 1950.

16 P. R. Cannon, "The Importance of Proteins in the Resistance to Infection," *Journal of the American Medical Association,* Vol. 128, June, 1945, p. 360.

17 R. L. Jackson and H. G. Kelly, "Nutrition in Rheumatic Fever," *Journal of the American Dietetics Association,* Vol. 25, May, 1949, p. 392.

18 Frederick J. Stare, M.D., "Nutrition in Heart Disease and Geriatrics," *Modern Medicine,* Vol. 22, Dec. 1, 1954, pp. 79, 83.

19 A. W. Pennington, "Treatment of Obesity with Calorically Unrestricted Diets," *Journal of Clinical Nutrition,* Vol. 1, Sept., 1953, pp. 343-8.

20 J. W. Conn, "The Dietary Management of Spontaneous Hypoglycemia," *Journal of the American Dietetics Association,* Vol. 23, Feb., 1947, pp. 109-11.

21 I. S. Kleiner, *Human Biochemistry,* 3rd ed., (St. Louis, M., C. V. Mosby Co., 1951), p. 320-1.

22 N. W. Flodin, "Amino Acids and Proteins; Their Place in Human Nutrition Problems," *Agricultural and Food Chemistry,* Vol. 1, Apr. 29, 1953, p. 223; also J. B. Allison, "Amino Acid Requirements of Man," *Borden's Review of Nutrition Research,* Sept.-October, 1955; also R. J. Block and D. Bolling, *The Amino Acid Composition of Proteins and Foods,* Sec. ed., (Sprinfield, Ill., Charles C. Thomas, 1951); also I. S. Kleiner, *Human Biochemistry,* Third Edition (St. Louis, Mo., C. V. Mosby Co.), p. 302.

23 Heinz Woltereck, *A New Life in Later Years,* (New York, The Dial Press, 1959), p. 139.

24 A. J. Carlson, M.D., Univ. of Chicago, Dept. of Physiology.

25 Louis Berman, M.D., *Food and Character,* (Boston, Mass., Houghton Mifflin Company, 1932).

26 *Archives of Pathology,* Feb., 1949.

27 *Nutrition Abstracts and Reviews,* January, 1957, p. 213.

27a Adapted from Adelle Davis, *Let's Eat Right to Keep Fit,* (New York, Harcourt, Brace & Co., 1954).

28 *Science,* Jan. 3, 1958.

29 From a letter to the author from Vilhjalmur Stefansson, July 9, 1960.
30 G. W. Thorn, J. T. Quimby and M. Clinton, Jr., "A Comparison of the Metabolic Effects of Isocaloric Meals of Varying Compositions with special Reference to the Prevention of Postprandial Hypoglycemic Symptoms," *Annals of Internal Medicine*, Vol. 18, 1943, p. 913.
31 Robert S. Goodhart, M.D., *Nutrition for you*, (New York, E. P. Dutton & Co., 1958), p. 30.
32 N. Philip Norman, M.D., *The Traid Disease*, (Milwaukee, Wis., Lee Foundation for Nutritional Research, 1958).
33 Fritz Kahn, M.D., *Man in Structure and Function*, (New York, Alfred A. Knopf, Inc., 1943).
34 Adelle Davis, *Let's Cook It Right*, (New York, Harcourt, Brace & Co., Inc., 1947), pp. 295-300.

CHAPTER 17

1 *Journal of the American Medical Association*, October 17. 1959, p. 164.
1a Tom Douglas Spies, M.D., address before 106th meeting, American Medical Association, 1957.
2 Melvin E. Page, D.D.S., address before Mid-States Odonto-Occlusal Symposium, McGregor, Minn., June 27-July 24, 1959.
3 Morton S. Biskind, M.D., "The Technic of Nutritional Therapy," *American Journal of Digestive Diseases*, Vol. 20, No. 3, March, 1953.
4 L. A. Maynard, Ph.D., "Effect of Fertilizers on the Nutritional Value of Food," *Journal of the American Medical Association*, Vol. 161, Aug. 11, 1956.
5 C. E. Auchter, Ph.D., "The Inter-relation of Soils and Plants, Animals and Human Nutrition," *Science*, Vol. 89, May 12, 1939, p. 2315.
6 Louise F. Gray, "Factors that Affect the Nutrients in Plants," *Food, U.S. Department of Agriculture, Yearbook*, 1959, pp. 389-95.
7 H. de la Marett, *Race, Sex and Environment*, (London, Hutchison's Scientific and Technical Publications, 1936), pp. 32-6.
8 Francis Pottenger, Jr., M.D., William Albrecht, Ph.D. and Ira Allison, M.D., *Report*, Merck & Co., July, 1949; (Milwaukee, Wis., reprint, Lee Foundation for Nutritional Research, Nos. 41 and 92).
9 William Albrecht, Ph.D., *Soil, Fertility and Animal Health*, (Webster City, Iowa, Fred Hahne Printing Co., 1958); *Geographical Review*, Vol. 47, No. 1, 1957, pp. 86-105.
10 Andre Voisin, *Soil, Grass and Cancer*, (New York, Philosophical Library, Inc., 1959).

11 *Modern Nutrition,* Vol. 13, Feb., 1960; also L. F. Gray, N. Spiers and G. Matrone, *Journal of Nutrition,* Vol. 63, 1957, p. 345.
12 U.S. Dept. of Agriculture, Beltsville, Md.
13 Firman E. Bear, S. J. Toth, A. L. Prince, "Regional Variations in the Mineral Composition of Vegetables," *The Land,* Vol. 7, No. 3, Autumn, 1948.
14 Fairfield Osborn, *Our Plundered Planet,* (Boston, Mass., Little, Brown & Co., 1948).
15 Leonard Wickenden, F.A.I.C., "Which Road for Science?," *Natural Food and Farming Magazine,* Jan., 1959.
16 *Mother Earth,* Jan., 1960; also Ehrenfried E. Pfeiffer, Ph.D., M.D., "Commentary on Definitions," *Natural Food and Farming Digest,* No. 1, 1957, p. 136.
17 Raymond Bernard, Ph.D., *The Organic Revolution in Nutrition,* (Mokelume Hill, Calif., Health Research).
18 C. F. King, *Farmers for Forty Centuries,* (London, Jonathan Cape, 1948).
19 Alexander Berglas, M.D., *Cancer: Nature, Cause and Cure,* (privately printed, Cancer Research Foundation, Paris, France, Pasteur Institute, 1957).
20 Clive M. McCay, M.D., "Use and Abuse of Foods," *Natural Food and Farming Magazine,* Oct., 1959.
21 Betty Pettit, "Should We Cook in Aluminum?," *Natural Food and Farming Magazine,* March, 1960; also *Mellon Institute of Industrial Research Bulletin* No. 3, Pittsburgh, Penna.
22 "Stainless Steel Cooking Utensils," *Consumer Bulletin,* Oct., 1957.
23 Edward J. Ryan, D.D.S., Editor, *Dental Digest,* Feb., 1958.
24 Roger J. Williams, *What to Do About Vitamins,* (Norman, Okla., University of Oklahoma Press, 1945).
25 Study, Department of Biochemistry, University of Alberta; "Loss of Nutrients in Cooking," *Indian Medical Journal Research,* Vol. 46, 1958, pp. 609-12.
26 Vollie Tripp, "Never Mind if it's Fit to Eat—Will it Ship?," *Natural Food and Farming Magazine,* Aug., 1958.
27 Eugene D. Fleming, "Which Diets Are Best for You?," *Cosmopolitan,* June, 1958.
28 Tom Spies, M.D., *Rehabilitation through Nutrition,* (Philadelphia, W. B. Saunders, 1947).
29 Albert Q. Maisel, "Capsuled Vitamins: When Do we Need Them?," *Everywoman's-Family Circle,* Nov. 1959.

CHAPTER 18

1 A. H. Stevens, Ph.D., *Journal of Medical-Physical Research,* Sept.-Oct., 1953.

2 *Prevention*, May, 1954, p. 103.
3 *Journal of the American Medical Association*, Vol. 126, Nov. 25, 1944, p. 818.
4 Adelle Davis, *Let's Cook It Right*, (New York, Harcourt, Brace & Co., Inc., 1947).
5 Mail-order companies for stone-ground, unfumigated whole grains and other natural foods include advertisers in *Natural Food* and *Farming Magazine*, Natural Foods Associates, Atlanta, Tex., and *Organic Gardening, Prevention and Organic Foods Directory*, all in Emmaus, Penna.
6 P. J. Holloway, *et al*, "Fruit Drinks and Tooth Erosion," *British Dental Journal*, Vol. 104, 1958, pp. 305-9.
7 Philip S. Chen, Ph.D., *Soybeans for Health, Longevity and Economy*, (South Lancaster, Mass., Chemical Elements, 1956); Mildred Lager, *How to Use the Soybean*, (Arlington, Calif., La Sierra College Press, 1955).
8 Tom Spies, M.D., *Rehabilitation Through Nutrition*, (Philadelphia, W. D. Saunders, 1947).
9 Krehl and Winters, Nutrition Laboratory, School of Medicine, Yale University, New Haven, Conn.
10 Estelle Hawley, associate professor Pediatrics and Nutrition, Rochester Univ., Rochester, N.Y.
11 Recipe for Cornell Bread Mix:—6 cups unbleached flour
½ cup soy flour (full fat)
¾ cup dry milk (non-fat)
3 tblsps. wheat germ

also *You Can Make Cornell Bread*, Jeanette and Clive McCay, Route #1, Ithaca, N.Y., booklet, 25¢.

CHAPTER 19

1 J. D. Ratcliff, "The Miracle of Muscle," *Today's Health*, Jan., 1956.
2 Henry J. Montoye, M.D., Michigan State University, East Lansing, Mich.
3 H. W. Fullerton, M.D. and G. A. McDonald, M.D., Univ. of Aberdeen, Aberdeen, Scotland.
4 William T. Foley, M.D., New York Hospital, Cornell Medical Center, N.Y.
5 Theodore Klumpp, M.D., *New York World Telegram and Sun*, Aug. 29, 1959.
6 Herbert Pollack, M.D., Medical School, New York University, N.Y.
7 Jean Mayer, Ph.D., and associates, Harvard Univ., Cambridge, Mass.
8 Bonnie Prudden, "How to Get More Out of Life," *Sports Illustrated*, Aug. 5, 1957.

9 Joseph H. Pilates, *Return to Life*, (Boston, Mass., Christopher Publishing House, 1960).
10 Bess M. Mensendieck, M.D., *Look Better, Feel Better*, (New York, Harper & Bros., 1954).
11 Bonnie Prudden, *Bonnie Prudden's Fitness Book*, (New York, The Ronald Press Company, 1959); Anne Winter, *Senior Citizens, Be Kind to Your Body*, (Ithaca, N.Y., Adult Education, Ithaca Public Schools); Indra Devi, *Forever Young, Forever Healthy*, (Englewood Cliffs, N.J., Prentice-Hall, Inc., 1953); Jack La Lanne, *The Jack La Lanne Way to Vibrant Good Health*, (Englewood Cliffs, N.J., Prentice-Hall, Inc., 1960); John Robert Powers, *How to Have Beauty, Poise and Personality*, (Englewood Cliffs, N.J., Prentice-Hall, Inc., 1960).
12 Keith Monroe, "Six Seconds for Exercise," *Reader's Digest*, July, 1959.
13 Capt. W. P. Knowles, "Do You Really Know How to Breathe?," *Today's Living*, Feb. 15, 1959.
14 Leslie O. Korth, D.O., M.R.O., *Some Unusual Healing Methods*, (Wayside, Hindhead, Surrey, England, Health Science Press), 1960.

CHAPTER 20

1 Elizabeth Gilfillan, *Face Health With Face Exercises*, booklet, available from P.O. Box 1613, Grand Central Sta., N.Y.
2 Frederick W. Rossiter, M.D., *Face Culture*, (New York, Pageant Books, Inc., 1956).
3 Sanford Bennett, *Old Age, Its Cause and Prevention*, (o.p.).
4 Ethel Foresman, *Better Health, Nicer Skin, Longer Life*, (Boston, Meador Publishing Co., 1959).
5 Facial mask obtainable from Entre Nous, Box 797, Yakima, Wash.; Entre Nous also has electric and non-electric facial exercisers, which in order to be effective should be used fifteen minutes daily, (actually a lazier, more expensive way of doing what you can accomplish yourself;. Re: machine exercise; *Vogue Beauty Book*, 1959-60, says: "Facial exercise could be the next big thing in beauty practice. Proof of success: In some famous stay-young faces."
6 Firms practicing these techniques include Profile Symmetry, 53 W. 57th St., New York; Face Culture, Inc., 1612 20th St., N.E., Washington, D.C.; Ezio Scateni, 1613 Alton Rd., Miami Beach, Fla.; Renna Method, 8663 Sunset Blvd., Hollywood, Calif.
7 Slant board may be made with wood from local lumber yard, padded with foam rubber, or an ironing board may be

used; commercial slant boards available at local health food stores. Important thing is to get feet 12-15 inches higher than head.

8 John Robert Powers, *How to Have Model Beauty, Poise and Personality,* (Englewood Cliffs, N.J., Prentice-Hall, Inc., 1960).

CHAPTER 21

1 *American Journal of Clinical Nutrition,* May-June, 1959, p. 288.

2 *Bulletin of the New York Academy of Medicine,* sec. series, Vol. 32, No. 2, 1956, p. 91.

2a *New York Mirror,* Nov. 14, 1959.

3 Fred D. Miller, D.D.S., *Open Door to Health,* (New York, The Devin-Adair Co., 1959).

4 *American Journal of Clinical Nutrition,* July-Aug., 1958, p. 449.

5 Norman Jolliffe, M.D., *Reduce and Stay Reduced,* (New York, Simon and Schuster, Inc., 1957).

6 Thyra Samter Winslow, *Think Yourself Thin,* (New York, Abelard Schuman, Inc., 1951).

7 From Sheilah Graham syndicated column, *New York Mirror.*

8 Charles W. Shedd, D.D., *Pray Your Weight Away,* (Philadelphia, J. B. Lippincott Co., 1957); Deborah Pierce, *I Prayed Myself Thin,* (New York, Citadel Press, 1960).

9 Adelle Davis, *Let's Eat Right to Keep Fit,* (New York, Harcourt, Brace & Co., Inc., 1954), p. 148.

10 June Owens, "Food News: Latest Rage for Dieters," *New York Times,* Sept. 20, 1960.

11 Bess Furman, "Diet Mixes Seized on Label Charges," *New York Times,* Dec. 20, 1960; "Report on Enforcement and Compliance," U.S. Dept. of Health, Welfare and Education, Food and Drug Administration, Washington, D.C., Dec., 1960.

CHAPTER 22

1 *Archives of Dermatology and Syphilogy,* (Chicago, American Medical Association, Vol. 66, 1952), p. 304; *Practitioner,* Vol. 173, 1954, p. 159.

2 *Science Newsletter,* Oct. 31, 1959.

3 Such soaps include Vege-Oat Soap, Barth's, Woodmere, N.Y.; Neutrogena, mfgr. in Belgium, available from Natone Co., Los Angeles, Calif.; also imported olive oil soaps from special sources.

4 *Journal of Gerontology,* Vol. 5, 1950, p. 17; *Archives of*

Dermatology and Syphilology, (Chicago, American Medical Association, Vol. 59, 1949), p. 449.

5 Trade name, "Ultra-Feminine."

6 M. Sulzberger, M.D., testimony before House Select Committee on Chemicals in Foods and Cosmetics, 1952, p. 1066.

7 Joseph J. Eller and W. D. Eller, *Archives of Dermatology and Syphilology,* (Chicago, American Medical Association, Vol. 59, 1949), p. 449.

8 W. E. Shute, M.D. and E. V. Shute, M.D., "Absorption of Vitamin E Through the Skin," Alpha-Tocopheral in Cardiovascular Disease, (Toronto, The Ryerson Press, 1954); *Absorption of Vitamin A,* (New York, Killian Research Labs); John A. Killian, Ph.D. and T. Rivera, Ph.D., "Experimental Studies of the Transcutaneous Absorption of Vitamin A," report to the Society of Cosmetic Chemists, London, Oct. 8, 1948.

9 *Journal of Nutrition,* June, 1956.

9a Sources include Walnut Acres, Penn's Creek Penna; Foods-Plus Pharmacy, 62 W, 45th Street, New York City, Coty, Vitamin A and D cream; also write Ruth Alden Foss Inc., Hawthorne N.Y. for free literature on a natural herbal skin lotion called "Facetone."

10 *Nutrition Reviews,* Apr.-May, 1960.

11 Joseph G. Molner, M.D., syndicated column, "To Your Good Health," Field Enterprises, Inc.

12 *Antibiotic Medicine and Clinical Therapy,* Vol. 4, p. 403.

13 *Journal of the American Medical Association,* Vol. 171, p. 632.

14 Norman G. Hillier, *The Life and Beauty of Your Hair,* (New York, The Devin-Adair Co., 1957).

15 *British Medical Journal,* July 14, 1956.

16 D. C. Jarvis, M.D., *Folk Medicine,* (New York, Henry Holt & Co., Inc., 1958).

17 *American Journal of Clinical Nutrition,* March-April, 1958, p. 136.

18 D. T. Quigley, M.D., *Diet Deficiencies in Everyday Life,* (Milwaukee, Wis., reprint No. 63, The Lee Foundation for Nutritional Research).

19 *Science Newsletter,* Nov. 10, 1951.

20 Adelle Davis, *Let's Eat Right to Keep Fit,* (New York, Harcourt, Brace & Co., Inc., 1954), p. 73.

21 *Nutritional Abstracts and Reviews,* Oct., 1959, No. 6251.

22 Letter to author from Agnes Fay Morgan, M.D., Sept. 13, 1960.

23 George R. Cowgill, M.D., Yale University, New Haven, Conn.

24 Phyllis Battelle, "Gray Hair and Good Diets," *New York*

Journal American, August 25, 1958. Formula available at Foods Plus Pharmacy, 62 W. 45th St., New York.
25 "Cataplex F" available at Vitamin Products Co., Milwaukee, Wis.
26 Lester M. Morrison, M.D., *The Low Fat Way to Health and Longer Life*, (Englewood Cliffs, N.J., Prentice-Hall, Inc., 1958), p. 195.

CHAPTER 23

1 Charles H. Lerrigo, M.D., *A Long Life to You*, (New York, G. S. Rand Publications, Pilgrim Books, 1951).
2 *American Journal of Obstetrics*, Vol. 65, 1953, pp. 1182-91.
3 Madeline Gray, *The Changing Years*, (New York, Doubleday and Co., Inc., 1959).
4 Adelle Davis, *Let's Eat Right to Keep Fit*, (New York, Harcourt, Brace & Co., 1959).
5 Raymond Bernard, Ph.D., *The Secret of Rejuvenation* (Mokelumne, Calif., Health Research); Lester Morrison, M.D., *The Low Fat Way to Health*, (Englewood Cliffs, N.J., Prentice-Hall, Inc., 1958).
6 E. V. Shute, M.D., uses alpha tocopherol, the single factor in Vitamin E. The Schiff-Bio Co., Hackensack, N.J., combines a natural source of alpha tocopherol with other tocopherols occurring in the entire E complex. This product is in powder form (capsules) and is known as "All-E." Says Mr. Schiff: "Why not keep the whole E family together? In years to come we may discover some unidentified factors in the E complex family which will prove important. Why not use them now?" Mr. Schiff may be correct in assuming that the E complex might prove more helpful than any of its single factors. Such is already true in the case of the B complex.
7 *British Medical Journal*, July 3, 1943.
8 N. R. Kavinoky, M.D., *Annals of Western Medicine and Surgery*, as reported in *Health Saver*, (New York, Health Publishing Co., 1959).
9 C. J. Christy, M.D., *American Journal of Obstetrics*, reported as "Painless Change of Life," *Health Saver*, Health Publishing Co., New York, Summer, 1959.
10 Same as Note 9.
11 Henry A. Gozan, M.D., *New York Journal of Medicine*, as reported in *Health Saver*, Health Publishing Co., New York, Summer, 1959.
12 *Prevention*, Sept., 1957.
13 J. P. Hart, Sc.D. and W. L. Cooper, "Vitamin F in the Treatment of Prostatic Hyperotrophy," report No. 1, Lee Foundation for Nutritional Research, Milwaukee, Wis.

14 "Cataplex F" available from Vitamin Products, Milwaukee, Wis. This is the only company I know of which makes this exact formula.
15 W. Devrient, M.D., "Androgen-Hormonal Curative Influence of a Neglected Plant;" G. Klein, M.D. and Bela Pater, M.D., "A New Theory on Prostate Disorder," *Prevention*, Sept., 1959, p. 46.
16 Bela Pater, M.D., *Prevention*, Sept., 1959, p. 46.
17 W. Devrient, M.D., *Prevention*, Sept., 1959, p. 46.
18 Henry Feinblatt, M.D. and Julian Gant, M.D., *Journal of the American Medical Association*, Mar., 1958.
19 Trade name, Prostex.
20 Frank L. Caprio, M.D., *The Sexually Adequate Male*, New York, Citadel Press, 1952).
21 Abram Kardiner, M.D. *Sex and Morality*, (New York, Bobbs-Merrill, 1954).
22 Alexander Wolf, M.D., psychiatrist.
23 Marion Hilliard, M.D., *Women and Fatigue: A Woman Doctor's Answer*, (New York, Doubleday and Co., Inc., 1956); also Leland Kordel, *Lady Be Loved*, (Cleveland, Ohio, The World Publishing Company, 1953).
24 Evan Shute, M.D., *Urological and Cutaneous Review*, Vol. 48, 1944.
25 *Endocrinology*, September, 1951.
26 *Nutrition Abstracts and Reviews*, Sept., 1959, Nos. 5490 and 5494.
27 E. Vincent Askey, M.D., president-elect, American Medical Association, statement reported by Eugene D. Fleming, "The Race for Health," *Cosmopolitan*, April, 1960.
28 Lelord Kordel, *Eat Your Troubles Away*, (Cleveland Ohio, World Publishing Co., 1955).
29 R. W. Bernard, Ph.D., *Secret of Rejuvenation*, (Health Research, Mokelumne Hill, Calif.).

CHAPTER 24

1 Hans Selye, M.D., *The Stress of Life*, (New York, McGraw-Hill Book Company, Inc., 1956); also Nancy E. Gross, foreward by Hans Selye, *Living with Stress*, (New York, McGraw-Hill Book Company, Inc., 1958).
2 Community Service Society helps with all types of family stress—illness, poor housing, economic difficulties, problem children, marriage difficulties. Also helps people to gain insights into their own behavior, attitudes and feeling. Local Community Chest or Welfare Council has address of nearest society chapter; National Association for Mental Health, with more than 750 affiliates, can be contacted at headquarters, 10 Columbus Circle, New York, for chapter locations; Recovery,

Inc., a non-profit group gives assistance with emotional problems, headquarters, 116 S. Michigan Ave., Chicago, Ill.; Family Service Association of America has 268 counseling agencies, many with psychiatrists as counselors, charging a small fee when family is able to pay.
3 Stephen S. Price, *How to Speak with Power*, (New York, McGraw-Hill Book Company, Inc., 1959).
4 Ethyl R. Grady, work simplification expert, College of Home Economics, University of Rhode Island.
5 Virginia Forsythe, "I Take a Vacation Every Day!," *Woman's Day*, June, 1959.
6 Commercial name, "Stress-o-Vite."
7 Adelle Davis, *Let's Eat Right to Keep Fit*, (New York, Harcourt, Brace & Co., Inc., 1954).
8 Bernard Jensen, *I Feel Wonderful, So Can You*, (New York, Gilbert Press, 1956).
9 W. D. Currier, M.D., "Nutritional Aspects of Stress," *Modern Nutrition*, Sept., 1958, p. 7.
10 Tom Spies, M.D., *Journal of the American Medical Association*, June 7, 1958.
11 "Physician Warns on Wonder Drugs," *New York Times*, April 13, 1960.
12 "List of Ills Laid to Drug Use," *New York Times*, Jan. 4, 1960.
13 Philip Polatin, M.D., associate professor, psychiatry, Columbia University, quote in *New York Mirror*, May 26, 1958.
14 Addiction Research Center of the National Institute of Mental Health, reported in *Nature's Path*, May, 1958.
15 T. M. Haizlip, M.D. and J. A. Ewing, M.D., *New England Medical Journal*.
16 *Nature's Path*, May, 1958; also "Death of Woman Laid to Pep Pills," *New York Times*, April 19, 1958.
17 Benjamin Boshes, M.D., chairman, Department of Neurology and Psychiatry, Northwestern University Medical School.
18 Gallup Poll, *Saturday Evening Post*, August 15, *et. seq.*, 1959.
19 *Reader's Digest*, Nov., 1960.

CHAPTER 25

1 Smiley Blanton, with Arthur Gordon, *Now or Never*, (Englewood Cliffs, N.J., Prentice-Hall, Inc., 1959).
2 K. C. Ingram, *Winning Your Way with People*, (New York, McGraw-Hill Book Company, Inc., 1949).
3 Pitirim A. Sorokin, Ph.D., *The Ways and Power of Love*, (Cambridge, Mass., Harvard University Press, 1954).
4 Ralph G. Nichols and Leonard A. Stevens, *Are You*

Listening?, (New York, McGraw-Hill Book Company, Inc., 1957).
5 Carl Rogers, Ph.D., University of Chicago.
6 Erich Fromm, M.D., *The Art of Loving,* (New York, Harper and Brothers, 1956).

CHAPTER 26

1 John Ellis Large, *The Ministry of Healing,* (New York, Morehouse-Barlow Co., Inc., 1959).
2 Smiley Blanton, with Arthur Gordon, *Now or Never,* (Englewood Cliffs, N.J., Prentice-Hall, Inc., 1959).
3 Clarence W. Hall, *Adventure for God,* (New York, Harper and Brothers, 1959).
4 Franklin Loehr, D.D., *The Power of Prayer on Plants,* (New York, Doubleday & Company, Inc., 1959).
5 Agnes Sanford, *The Healing Light,* (St. Paul, Minn., The Macalester Park Publishing Co., 1947).
6 Max Freedom Long, *Self Suggestion,* (Box 875, Vista, Calif., Huna Research Pub.).
7 Some of following books are on loan from Mrs. Mildred S. Hatch, 8 Pine St., St. Johnsbury, Vt.; others in local libraries and bookstores: Emily Gardner Neal, *A Reporter Finds God Through Spiritual Healing,* (New York, Morehouse-Barlow Co., 1950); Will Oursler, *The Healing Power of Faith,* (New York, Hawthorn Books, Inc., 1957); Walter W. Dwyer, *Spiritual Healing in the United States and Great Britain,* (a small book of accepted sources of spiritual healing. Price 25¢. Order directly from author, West Dennis, Mass.); Edgar L. Sanford, D.D., *God's Healing Power,* (Englewood Cliffs, N.J., Prentice-Hall, Inc., 1959); Frederick W. Bailes, *Your Mind Can Heal You,* (New York, Dodd, Mead & Co., 1957); Frederick W. Bailes, *Hidden Power for Human Problems,* (Englewood Cliffs, N.J., Prentice-Hall, Inc., 1957).

CHAPTER 27

1 Arnold A. Hutschnecker, M.D., *The Will to Live,* (Englewood Cliffs, N.J., Prentice-Hall, Inc., 1958); also paperback, Perma Book.
2 D. M. Kissen, M.D., Department of Health, Scotland.
3 Desmond Curran, M.D., senior psychiatrist, St. George's Hospital, London.
4 E. E. Roberts, M.D., Indian *Hamdark Medical Digest,* Jan., 1958.
5 As reported by Arnold A. Hutschnecker, M.D., *The Will to Live,* (Englewood Cliffs, N.J., Prentice-Hall, Inc., 1958).

6 Franz Alexander, M.D., Mount Sinai Hospital, Los Angeles, Calif.

7 Curt S. Wachtel, M.D., *Your Mind Can Make You Sick or Well*, (Englewood Cliffs, N.J., Prentice-Hall, Inc., 1959).

8 Hornell Hart, Ph.D., *Autoconditioning*, (Englewood Cliffs, N.J., Prentice-Hall, Inc., 1956).

9 John W. McKelvey, D.D., Lansdowne, Penna.

10 Robert Peterson, "Life Begins at Forty," syndicated column, King features.

11 Catherine Marshall, *To Live Again*, (Englewood Cliffs, N.J., Prentice-Hall, Inc., 1947); Marian Langer, *Learning to Live as a Widow*, (New York, Julian Messner, Inc., 1957); Eric P. Mosse, M.D., *The Conquest of Loneliness*, (New York, Random House, 1957).

12 Ann Ingraham, "What We Learned about Widows," *Journal of Lifetime Living*, July, 1959.

13 Reported by Dr. Norman Vincent Peale.

14 Roy Garn, *The Magic Power of Emotional Appeal*, (Englewood Cliffs, N.J., Prentice-Hall, Inc., 1960); Dora Albert, *You're Better Than You Think*, (Englewood Cliffs, N.J., Prentice-Hall, Inc., 1957); John A. Schindler, M.D., *How to Live 365 Days a Year*, (Englewood Cliffs, N.J., Prentice-Hall, Inc., 1954); Claude Bristol, *The Magic of Believing*, (Englewood Cliffs, N.J., Prentice-Hall, Inc., 1948).

15 R. DeWitt Miller, *You Do Take It With You*, (New York, Citadel Press, 1957).

16 David Seabury, *The Art of Living Without Tension*, (New York, Harper & Brothers, 1958).

17 William James, *The Mystic Will*, (New York, Longmans Green & Co., Inc.).

18 E. E. Roberts, "Avoid the Habit of Dying," *Health Secrets from Foreign Lands*, Emmans, Penna., Rodale Books, Inc., 1961.

19 McGill Univ., Montreal.

20 Cornell Univ., *Journal of Social Issues*, Vol. XIV, No.2, 1958.

21 Mollie Hart, *When Your Husband Retires*, (New York, Appleton-Century-Crofts, 1960).

22 Heinz Woltereck, M.D., *A New Life in Later Years*, (New York, The Dial Press, 1959).

23 Herbert Hoover, interview with Robert Peterson, in "Life Begins at Forty," syndicated column, *New York Journal American*, August 11, 1960.

24 Thomas C. Desmond, chairman, New York State Joint Legislative Committee on Aging Problems.

25 Luigi Cornaro, *How to Live 100 Years*, (London, Health-for-All Pub. Co.).

Index

Abrahamson and Pezet, 75
Abrams, H. Leon, Jr., 55-6
absorption, impaired, 140
acerola cherries, 241
acidophilus milk, 174
acronized poultry, 90
additives, in foods, 87-104
  in functions, 97-9
adrenal glands, 130, 306, 312
adrenalin, 165
Aebersold, Paul G., 30
Agene, 60-1
aging pattern, 22-3, 32-5
  signs of, 35-6, 323
  process, slowing down, 41-9
  skin, 281
Ahrens, Edward H., Jr., 169-70
Air Force, cholesterol level, 165
air pollution, 110-12
  crop damage from 111
  and degenerative diseases, 110
Albrecht, William, 221-2
alcohol and sugar, 76-77
Alexander, Franz, 335
Allison, Pottenger and Albrecht, 220-2
alloxan, 61
Altshuler, Ira, 308
aluminum pots, 229-30
American Medical Association,
  Committee on Aging, 25
  Handbook on Nutrition, 70
  Resolution, nutritional instruction, 49
American Public Health Association, 110-11
amino acids, 202-3, 284, 302
angina, 42, 150
anti-dandruff preparations, 286
appestat, 274-5
appetite, "queer," 201
Argentinian Ministry of Health, 205
arthritis, 172
Ashikawa, James K., 117
Askey, E. Vincent, 304
Aslan, Anna, 39
arteriosclerosis, 162
atherosclerosis, 162
Atomic Energy Commission, 112-14
Auchter, E. C., 218-19
auto-suggestion, 331, 336
auxinon foods, 154-6
Aware Inn, The, 125

Bailey, C. W., 246
Baker, Jim, 125
baldness, causes, 287-8
Bang's Disease, 220-1
Barnard, R.D. and J. F., 117
basic foods, seven, 212
Bear, Firman E., 223
Beginner's Luck Bread, recipe, 250-1
Bennett, Sanford, 262, 265
Bentley, C.F., 115
Berger, Bernard, 105, 106
Berglas, Alexander, 226
Berglund, H.J. and Nichols, H.L., Jr., 48
beri-beri, 44, 199-200
Berman, Louis, 205
Bernard, Raymond, 133-4, 226, 305
beverages, 238-9

Bicknell, Franklin, 200
Bicknell and Prescott, 178
Billig, Harvey E., Jr., 310
biological controls, 87
Bircher-Benner, 157-8
Biskind, Gerson R., 304
Biskind, Morton S.,
  inadequate diets, causes, 217
  inadequate protein, 204
  liver, 140
  pesticides and human health, 78, 80-7
  sugar, 69
  treatment for pesticide poisoning, 86-7
  vitamin B complex, 136
  vitamins, multiple concentrates, 137
  vitamins and multiple deficiencies, 136-40
Blanton, Smiley, 308, 321, 324, 328-29
bleaching of flour, 60-1
blood disorders and pesticides, 77-8
Bocca, Geoffrey, 38
body chemistry, 166-8, 201
  during pre-menstrual period, 295-6
  and sugar, 69-75
bolting of flour, 59-60
bone marrow,
  against radiation, 117
  and calcium utilization, 154
bonemeal, 152-3
  against radiation, 117
Bortz, Edward L., 25-6
Boshes, Benjamin, 315
Bowes, Anna P., 234
Braestup, Carl B., 118
bread, recipes for, 248-52
  chemical softeners in, 63-4
  enriched, 63
  white, danger of, 59-62
  whole wheat, danger of, 64-5
breakfast, 209-10
breathing, 259-61
brewer's yeast, 177-81
  analysis, 177-8
  Torula, danger of, 181
brown rice, 44
brucellosis, 221
brushing of hair, 286
Burkholder, Paul, 246
Burney, Leroy, 104
butter and cholesterol, 165-6
  tampering with, 92
buttermilk and cholesterol, 165

calcium, 152-4
  absorption, 154
  Chalaza, 153-4
  deficiency pattern, 33, 34-5
  pre-menstrual and menopause tension, 295-6
  and menopause, 297
  and stress, 313
  utilization and bone marrow, 154
calisthenics, 257-9
calories, amount needed, 37, 256
Cannon, Paul R., 203
Caprio, Frank S., 302
Carlson, A.J.,
  natural vitamins, 143
  vegetarianism vs. meat-eating, 205
Carter, Richard, 66
Cavallero, Gene, 211
cereals,
  cost, 67
  dry, packaged, 66-7
  recipes for, 248
Certified Diet Food Stores, 123
certified raw milk, 195-6
Cesium, 112, 137
Chalaza, 153-4
change of life, male, 300
chemical fertilizers, 224-7
chemical softeners in bread, 63-4

Chen, Philip S., 160
Cheshire County Medical Testament, 57
chicken feed for children, 29
Chlorpromazine, 314
chocolate, 239
cholesterol, 160-70
  and alcohol, 164-5
  and body chemistry, 166-8
  vitamin B complex, 168
  and carbohydrates, 165
  and exercise, 166
  and smoking, 165
  factors in high levels, 165
  lowering of, 167-8
  need for in the body, 162
  and pesticides, 78
  normal level, 164
  nutritional aids, 166-70
  and stress, 165
  and sugar, 165
  and vegetarianism, 202
Christy, C.J., 299
chromatograms, 143-4, 225
chronic ailments, 50-2
Clapper, Mrs. Raymond, 337
Clarke and Chang, 106
cocoa, 239
cod liver oil, 26, 150, 154, 260
coffee, 238
  and gray hair, 290-1
cola drinks and tooth decay, 69, 200
Congressional hearings, 108
Conner, John T., 54
constipation,
  and blackstrap molasses, 172
  and brewers yeast, 178
  and yogurt, 174
Consumer Reports on radiation, 113-14
copper pots, 229
Cornaro, Luigi, 344
Cornell bread, recipe, 250
cosmetics, 280-4
Cowgill, George R., 290-1
creams and oils for skin, 281-3
crystalline vitamins, 144
cultured milks, 172-5
Cureton, Thomas K., 176-255
Curran, Desmond, 332
Currier, W.D., 312-13
Cutolo, Salvator, 271
cystitis, 300

dandruff, 285-6
Daniels, Amy L. and Everson, Gladys, 191
Danish experiment with diet, 57
Davidson, Charles S., 204
Davis, Adelle,
  baldness, 287-8
  blackstrap molasses, 172
  cocoa and chocolate, 239
  dangers of single vitamins, 133
  draft rejection, 52
  fats and reducing, 201
  hair recoloring, 293
  iodine and goiter, 150
  menopause, 298-9
  value of organ meats in rejuvenation, 38-9
  small evening meals, 209
  sugar and menstrual cycle, 201
  Tigers Milk, 210
  vitamin E and menopause, 299
  yogurt, 173-4
deformities in children, 23
degenerative diseases, 50-2
de Kruif, Paul, 43, 184
Delaney, James J., 103
Delaney clause, 99, 101
Delaney hearings, 88
Denmark, diet of, 57
Department of Health, Education and Welfare, Public Health Service, 50-1
destructive emotions, 336-8
detergents, 106, 282

de Vries, Arnold, 56
diabetes and sugar, 67, 68
Dingell, John D., 89
diseases,
  food and soil, 216-24
  causes of, 26
  survey of, 50-51
dishes, poisonous, 119
Dix, Dorothy, 322
Dock, William, 191
dog food, 28
Donaldson, Blake F, 193
drugs and impotency, 303
  and stress, 313-5
dry milk powder, 196
dulse, 150-1
duPont diet, 275

Eagle, Edward, 64
eating away from home, 123-6
Eddy, Mary Baker, 339
educating yourself, 126-8
eggs, tampering with, 91-2
  and cholesterol, 162, 163
Eijkmann, Christian, 44
Eller, Joseph J., 283
empty bags, 28
energy,
  and brewers' yeast, 179
  and iodine, 150-1
  and liver, 183-4
enriching of bread, 63
environmental, pollutants, 104-18
  radiation, 112-18
  Lab., N.Y.U., 113
enzymes, 156-8
  destruction of, 156-7
  in raw foods, 156-8
Eppright, Ercel S., 234
Ershoff, B.H., 184
estrogenic skin creams, 282-3
estrogens in food, 88-90
exercise, 255-61
  facial, 261-7
  neck, 263-5

face lifting, natural, 262-3
face mask, 264
facial,
  exercises, 261-3
  nutritional aids, 267-8
factor X, 155
faddism, food, 227-9
Fairleigh Dickinson U., 126
fall-out, 112-18
fatigue,
  and exercise, 256
  job, 302
  and dessicated liver, 183-5
fats, 158-70
  intermediate, 159
  saturated, 159
  unsaturated, 159
fats and oils, 158-70, 242-3
  desirable, 162-3
  needed in diet, 162-3
fat-free diet, experiments, 163
Feinstein, Alvin R., 277-8
fertilizers, chemical, 224-7
Flemming, Arthur S., 99, 114
Flesch, Peter, 287
fluoridation, A.M.A. resolution on, 109
fluoride, and mongolism, 109
  and strontium 90, 109
food additives, 87-104
  in other countries, 103
food destroyers, 230-2
food faddism, 227-9
food laws,
  concept of "safe amount," 100
  inadequacy of, 99-100
  means of improving, 101-4
  provisions of, 99-100
Food and Drug Administration, 95, 102, 304
Foresman, Ethel, 262, 264
Forsythe, Virginia, 309
Fredericks, Carlton, 32-3, 49, 292
freeze drying of milk, 196
Freud, Sigmund, 48
Friedman, Meyer, 165

Friedman, Byers, and Rosenman, 168
Fromm, Erich, 326
fruit juices, 239
fruits and vegetables,
  fresh, 37, 120
  tampering with, 92

gallstones and fat-free diets, 163
Gallup Poll, 315-16
Gardiner, Thomas S., 22
gelatine, for nails, 284
  as incomplete protein, 203
geriatric clinic, 41-2
Gerioptil, 39
Gerovital, 39
Giberellin, 92
Gilfillan, Elizabeth, 262, 268-9
Godfrey, Arthur, 293
goiter, 150
Goldberger, Joseph, 44-45
Goodhart, Robert S., 209
Gozan, Henry A., 299
Grady, Ethyl R., 309
Grant, Cary, 275
Gray, Louise F., 219
Griest, Henry M., 207
glucose (dextrose, corn syrup), 68
Goldberger, Joseph, 44-5
governmental census, life span, 54
Graves and Miller, 155
gravity, pull of, 262, 266
Greppi, Enrico, 49
gum disturbances, 153

H_3, 39-40
habit changing, 243-4
hair, 284-94
  graying, 290-1
  restoring color, 291-4
  superfluous, 288-90
Halstead, Bruce H., 91
Hamburger, Christian, 89
handling difficult people, 326-8
Hanflin, Seymour L., 282
Hargraves, Malcolm H., 77-8
Harris, Robert S., 108, 233
Harrow and Mazur, 156
Hart, James Pirie and Cooper, William Le Grande, 300-1
Hart, Mollie, 342
Hatch, Mildred S., 127-8
Haughley Experiment, 226
Hawley, Estelle, 250
health books, 127-8
health foods, sources, 123
health food stores, 122-3
heart disease,
  angina, 42, 150
  and cholesterol, 160-2
  and vitamin E, 60
  loafer's heart, 255-6
Hegsted, Mark, 192
Henderson, Edward, 22
Henneman, Philip H., 192
Henricksen, Erle, 295
hepatitis, 80, 91
Hershey, Lewis B., 52
Hillier, Norman G., 285-8
Hindhede, Mikkel, 57
Hirsch, Sol, 34
home grown vegetables and fruits, 120
homogenization of milk, 193-4
Hoover, Herbert, 343
hormone creams for skin, 282-3
Horwitt, M.K., 169
Howe, Samuel Gridley, 338
Hueper, Wilhelm,
  on air pollution, 111
  on carcinogens, 94-7
  list of chemicals capable of causing cancer, 95-97
  stilbestrol, 89
Hunecke, Walter, 39
Hunzas, 54-5

Hutschnecker, Arnold A., 332, 334-5, 338, 341
hydrogenated fats, 158-60
hydrogenation, 160
  and atherosclerosis, 160
hyper-insulinism (low blood sugar), 70-2

ice cream, ingredients in, 93
image making, 339-41
impotency,
  and drugs, 303
  factors in male, 302-3
  nutritional aids for, 303-6
  in animals, 155
Incaparina, 29
individual differences, 136, 197-9
industrial wastes, 105
infertility in animals, 155
Ingram, K.C., 322, 323
inositol,
  and blackstrap molasses, 172
  and baldness, 287-8
insomnia and stress, 316-17
iodine, 150-1
Iproniazid, 314

James, William, 340
Jarvis, de Forest C., 92-3, 285
Jensen, Bernard, 312
Jolliffe, Norman, 53, 135, 274, 277
Jordan, Sara M., 308-9, 315

Kahn, Fritz, 214
Kahn, Manya, 257
Kardiner, Abram, 302-3
Kavinoky, N.R., 298
kefir, 174-5
kelp, 150-1
Kerwin, James G., 109
Kessels, 203
Kirschner, H.E., 157
Kissen, D.M., 332
Klumpp, Theodore, 256
Knight, Granville F., 79-81, 84-6
Knowles, William P., 260-1
Kordel, Leland, 304-5
Korth, Leslie O., 261
Kouchakoff, 157
Krause, Louis A.M., 193

labels, learning to read, 121-2, 144
Laidlaw, Robert, 328
Laird, Donald, 266
Landone, Brown, 154-5
Lang, Edwin P., 116
Lapp, E., 114-15
Larrick, George, 102, 113
Leake, Chauncey D., 107-8
lecithin, 161, 181-3
  benefits from, 181-2
  and cholesterol, 181
  male potency, 182, 304-5
  menopause, 298
  pre-menstrual and menopause, 296
  radiation, 117
  stress, 313
Lee, Royal, 106, 152, 153
Lerrigo, Charles H., 295
Lewis, Robert, 110
library, free loan, 127-8
life expectancy, 53-4
life span, 53-4
liquid diets, 277
listening, 324-6
liver, 183-5
  desiccated, 184-5
  functions, 183-4
Lockhard, Ernest E. and Harris, Robert S., 233
Loehr, Franklin, 329-31
loneliness, 336-7
  Looney, Joseph N., 164
Long, Max Freedom, 331
longevity, occupations, 26
Longgood, William, 93
love, 321-8
low blood sugar, 70-3

Lynch, Harold D., and Snively, W.D., Jr., 191

Mac Nider, William, 173
male impotency, factors in, 302-3
  in animals, 155
male potency, 302-6
malnutrition and soil depletion, 218-24
Marks, Jerome, 178
marriage, successful, 322
Martin, Geoffrey, 98
Martin, Gustav, 172
Martin, William Coda, 77, 80, 101
Marx, Henry, 39-40
massage, face, 266
Maya Indians, 55-6
Maynard, L.A., 218
Mayo Clinic, 77
McBride, Mary Margaret, 269
McCann, Alfred, 27
McCarrison, Robert, 45-8
  disease and improper nutrition, 218
  life among Hunzas, 55
  vitamins, 147-8
McCartney, William N., 152-3
McCay, Clive M., 27
  bonemeal, 153
  food faddists, 227-9
  cola drinks and tooth decay, 69
  Cornell bread, 250
  eating less, 270-276
  educating ourselves, 126-7
  fluoridation, 109
  health food stores, 123
  learning to read labels, 121
  meal planning, 213
  slimness, 270-1, 276
  soft drinks, 239
  soy milk, 197
  stilbestrol and mouse sterility, 89
McCollum, 215
McKelvey, John W., 336
McLester, James S., 205
McQuarrie, Irvine, 152
meal planning,
  rearranged, 208-10
  simplicity of, 214-15
  keep pleasant, 214
meat,
  antibiotics in, 88-90
  eating, 201-7
  vs. vegetarianism, 201-2
  tampering with, 89
  tranquilizers in, 90
Medical Geographical Society, 28
Mellanby, 60
Mellon Institute, 229-30
Menninger, 311-12
menopause, 294-9
Mensendieck system, 258
mental illness and nutrition, 48-9, 71, 146
metal face mask, ancient, 264
Metropolitan Life Insurance Co., 54
Michael, E. H., 309
Mider, G. Burroughs, 97
milk, 190-7
  as beverage, 239
  homogenization, 193-4
  raw vs. pasteurized, 88, 193-6
  powder, skim, 196
  soy, 197
  tampering with, 88
Miller, Fred D., 157, 271
Miller Pesticide Amendment, 82-3
minerals, 148-54
minerals and enzymes, 148-58
Ministry of Health of Great Britain, 61
Minnesota Agricultural Experimental Station, 80
molasses, blackstrap, 171-2
Molner, Joseph G., 284
mongolism and fluoride, 109
Monteith, J. Aldo, 118

Moore, Barbara, 205
Morgan, Agnes Fay, 63, 132, 290, 307
Morrison, Lester M., 168, 170, 178, 183, 294
Morrow, F.J., 126
Muffly, Capt. Robert B., 315
muscle tone, 257-9

nails, 284-5
Narpozzi, A., 305
National Cancer Institute, 117
National Foundation for Antiaging Research, 22
National Institute of Health, 53
National Research Council Food and Nutrition Board, 233, 234
  dietary recommendations, 234, 312
  vitamin supplements, 141
natural vs. synthetic, 142-4
Nature, powers of, 236
neck rejuvenation exercises, 263-5
New York City, Department of Health, water pollution, 105-6
New York State Joint Committee on Aging Problems, 343
New York University, Medical Center Institute, 113
niacin, 133
Nichols, Joe D., 26, 91-2, 109, 165
Nichols, Ralph G., and Stevens, Leonard A., 325
Niehans, Paul, 38
nocturia, 300
Norman, N. Philip, 22
  fluorides, 108
  meal planning, 213
  pasteurized milk, 193
North Country School, 126
nutrition, books on, 127-8
Nutrition Foundation, 232
nutritional aids,
  and male impotency, 303-6
  premenstrual and menopause tension, 296-9
  to relieve stress, 312-13
nutritional time bomb, 33
nutritional yeast (brewers), 177-81

oatmeal bread, recipe, 251
oils, 158-70
bleaching of, 169
  crude, 169
  hydrogenation of, 160
  lecithin in, 161
  processing of, 169
  refining of, 169
Olsen, Robert E., 164
Orala-Jensen, 175
organizations interested in health and nutrition, 128
Osborn, Fairfield, 226
overeating,
  in animals, 221
  in people, 272-4
Owens, June, 277

PABA, 291-2
Page Foundation, 167
Page, Melvin E.,
  body chemistry, 217
  cholesterol, 166-8
  fruit juices, 239
  sugar, 69
  trace elements, 150
pantothenic acid,
  absence of, 187-8
  and hair color, 291
  and male potency, 304
  in Royal Jelly, 187
paralysis, temporary, 333-4
Parker, Milton E., 118
pasteurization of milk, 193-5
Pauling, Linus, 114, 115
Peale, Norman Vincent, 328-9, 337-8
pellagra, 44-5
Pentagon, 165

"pep" pills, 314-5
pesticides,
  absorption by plant tissues, 84
  accumulation in soils, 111-12
  conversion to new compounds, 112
  and health, 77-87
  and FDA supervision, 82-4
  laws, 82-3
  residues on foodstuffs, 81-6
  residues in milk, 84
  residues in soil, 85
  symptoms of poisoning, 78-81
  slow disintegration in soil, 111-12
  poisoning, treatment for, 84-7
Pfeiffer, Ehrenfried E.,
  sensitive crystalizations, 144, 225
  sprouting grain, 155
Pfizer Co., Charles, 306
physical fitness survey, 52
physical fitness of youth, 52
Piccard, Auguste, 107
picnicking away from home, 125-6
Pilates, Joseph H., 257
Polatin, Philip, 314
Pollack, Herbert, 256
pollutants,
  in the air, 110-11
  in the soil, 111
  in the water, 104-9
Popper, Hans, 314
posture, 268-9
potency, male, 302-6
Pottenger, Francis Y.M., Jr.,
  experiments with cats, 156-7
  pesticides and human health, 80
  raw butter, 165-6
  raw milk, 194
Pottenger, Francis Y. M., Jr., (*Cont.*)
  sprouted legumes & grains, 156
Pottenger, Allison and Albrecht, 34, 149-50, 220-1
poultry, acronized, 90
  tampering with, 90
power, of prayer, 328-32
  of thought, 338-9
Powers, John Robert, 268
prayer, of St. Francis, 332
  power of, 328-32
Price, Stephen S., 309
Price, Weston A., 56
  disease & improper nutrition, 218
  factor X, 155
  minerals and vitamins in primitive diets, 148
  primary yeast (brewers), 177-80
Prindle, Richard A., 110
procaine, 39-40
progesterone skin creams, 282-3
Profile Symmetry, 266
protein, 202-7
  adequate, 204
  complete, 156, 203
  incomplete, 202-3, 206-7
  lack of, 203-5
  male potency, 304-5
  pre-menstrual and menopause tension, 295-6
  table of, 206-7
prostates, 300-2
Prudden, Bonnie, 256, 257
pumpkin seeds, 189, 301
pyridoxine and cholesterol, 168

Quigley, D.H.,
  appetite, 199
  baldness, 287-8
  home grinding of grain, 65
  minerals, 148
  sugar, 69

Quigley, D. H., (*Cont.*)
  tampering with food, 92
  vitamins, 129
  vitamins and multiple concentrates, 139

Raab, Wilhelm, 256
Rabben, Michael,
  milk, 192
  minerals, 149
  synthetic vitamins, 143
Rabinowitch, I.M., 190
race horses and soil deficiencies, 223
radiation, 112-15
  bone marrow against, 117
  bonemeal against, 117
  brewer's yeast, against, 117
  calcium, 115-16
  contamination of foods, 113-14
  hazards, 112-17
  and oil, 117
  and lecithin, 117
  and milk, 115
  television, 118
radioactive wastes,
  in water, 106-7
Rapaport, Ionel, 109
Ratcliff, J.D., 255
raw milk, certified, 195-6
recipes,
  cereals, bread, rolls, 248-252
  yogurt, 245-6
reducing methods, 178, 201, 209, 256, 270-8
refining of oils, 169
rejuvenation methods, 37-41
Religio-Psychiatric Clinic, 328
Religious Research Foundation, 329
restoring hair color, 291-4
retirement, 342-4
Richardson, Senator W.P., 61-62
Rising, Jesse D., 314
Rivin, Arthur U., 133
Roberts, Albert, 110
Roberts, E.E., 333, 341
Rockefeller diet, 277-8
Rogers, Carl, 325
roller drying of milk, 196
Roosevelt, Franklin D., 338
Roosevelt, Theodore, 338
Rorty, James, 177
Rosamond, Eugene, 192
rose hips, 190
Rosell Institute, 173
Rossiter, Frederick M., 262-4, 265, 266
Royal Bank of Canada, 24
Royal, Gladys W., 117
Royal Jelly, 185-8
Ryan, Edward J., 230-1

St. Francis of Assisi, 332
Sajous, 305
salt, 200
Sandler, Benjamin P., 74
Sandlin, George, 322-3
Sanford, Agnes, 331
saturated fats, 159
Saunders, John B., 23
Schantz, Edward J., 91
Schiffman, Richard, and Landau, Emanuel, 110
Schmidt, Gerhard, 225
Schmidt and Royal Jelly, 185-6
Schotté, Oscar E., 30
Scrimshaw, Nevin, 29
Seabury, David, 340-1
sea food, contamination of, 91
  tampering with, 90
Sebrell, W. Henry, Jr., 53, 203
Selye, Hans, 40-1, 45
  insomnia, 316-17
  stress, 306-7
senior citizens, food for, 212
Shafrir, Eleazar, and Steinberg, Daniel, 165
shampoos, 286-7
Shapiro, Shepard, 172-3

Shaw, George Bernard, 183
Shedd, Charlie W., 276
shopping, 121-3
Shriber, Donald, 72-4
Shute, Evan V., 23
  vitamin E, alpha tocopherol, 145
  vitamin E and male impotency, 303-4
  vitamin E and menopause, 299
Sieve, Benjamin, 291-2
Sinclair, H.M., 138, 191
Sipperstein, 165
skin, 279-84
slant board, 266-7
slenderness, 270-8
Sloan-Kettering Institute, 178
Smith, William E., 101
soap, 282
sodium fluoride, 108-9
soil depletion and malnutrition, 218-24
  and depleted vegetables, 223
  and soil maps, 221-2
soil pollution, 111-12
Sorokin, Pitirim A., 324
soy beans and products, 190
soy milk, 197
soy oil for skin, 282
Spies, Tom Douglas, 43
  and brewers yeast, 178, 180
  and nutritional deficiencies, 216-17
  subclinical deficiencies, 232-3
  tranquilizers, 313-14
  vitamins, multiple concentrates, 139-40
  vitamin supplements and minerals, 240
splitting nails, 284
spray drying of milk, 196
sprouts, 156, 246-7
Squibb, Robert L., 29
Squibb's Institute for Medical Research, 283
stainless steel pots, 230
Stare, Frederick J., 160
statistics of degenerative diseases, 50-3
steaming vegetables, 245
Stefansson, Vilhjalmur, 56, 207
Steigmann, Frederick, 184
Steinhaus, Arthur H., 258-9
Steinmetz, Charles, 328
Stevens, A.H., 236
stilbestrol, 89-90
  breakdown products from, 89
  as a carcinogen, 89
  mink ranch sterility from, 89
  mouse sterility from, 89
  reaction, human, 89
  USDA survey of, 90
Stonecypher, David D., 21-2
stress, 306-17
  and desiccated liver, 184-5
  dealing with, 308-12
  and insomnia, 316-17
  and nutrition, 312-13
  and nutritional aids, 313
  and tranquilizers, 313-15
  and vitamin B complex, 313
  vitamin formula, 312
strontium 90, 112-17
  and bones, 112-13
  and fluoride, 109
  foods low in, 116
  nutritional aids for, 116
  Dr. Linus Pauling, 114, 115
subconscious, power of, 339-42
subclinical deficiencies, 232-4
sugar, 67-77, 237
  and alcohol, 76, 77
  American consumption of, 67
  and body chemistry, 70
  and cancer cells, 70
  glucose (corn syrup), 68
  low blood sugar, 70-3

sugar (*Cont.*)
  substitutes, 76
  and tooth decay, 69
  and ulcers, 70
  and menstrual cycle, 296
  and vitamin B complex, 69
Sumner, James B., 158
sunflower seeds, 188-9
superfluous hair, 289-90
supermarket game, 279
supplementation, need for, 41, 129-31, 141
synthetic vs. natural, 142-4
Szent-Gyori, Albert, 30

tampering with foods, 91-4, 98-9
teeth, 153-4
tension, pre-menstrual, 295-6
  and exercise, 256
thiamin, 132
Thorn, 208
Tiger's Milk, 210-11, 278
  recipe for, 211
Tobe, John, 55, 252
tooth decay and sugar, 69
trace elements, 149-51
tranquilizers and stress, 313-16
treatment for pesticide poisoning, 85-7
Turkel, H.W., 315
Tyner, George, 27

ulcers, 334
  and sugar, 70
undulant fever, 34-5, 220
U.S. Army Medical Corp, 315
U.S.D.A. Yearbook on Food 53-4, 149, 219-20
U.S.H.E.W. statement,
  radioactive wastes in water, 107
  water pollution, 105
U.S.P.H.S.,
  new division planned, 104
  pesticides on foods, 81
  survey of DDT and humans, 81
  Taft Engineering Center, 105
  water pollution warning, 105
University of California, 62-3, 67
University of Kansas, 314
unsaturated fats, 159
unsaturated fatty acids, 159

vegetables, best methods of cooking, 244-5
vegetarianism, 202-7
  and cholesterol, 202
vermiculite, 118
Vespucci, Simonetta, 324
vitamins, 128-48, 240-2
  crystalline, 143-4
  dangers of high dosage of A and D, 132
  deficiencies, 129-31, 137
  destruction of, 130-1
  imbalances, 132-4
  impaired absorption, 129-30, 140
  loss in cooking, 230-2
  needs established for human nutrition, 141-2
  supplementation, why necessary, 37, 129-31
  list of, in natural foods, 241-2
  synthetic vs. natural, 134, 142-4
  therapy, additional benefits, 146
  and skin, 283
vitamin A
  absorption, 134-5
  dangers of high dosage, 132
  loss in bleaching oil, 169
  male potency, 304
  pre-menstrual and menopause tension, 296
  source of, 241

vitamin B
  male potency, 304
  menopause, 298
  pre-menstrual and menopause tension, 296-8
  in Royal Jelly, 187
  in sprouted oats, 246
  sources of, 241
  and stress, 312
  Vitamin B2-destroyed by sunlight, 88
vitamin C
  and cholesterol, 168
  destroyed in cooking, 231-2
  destroyed in milk pasteurization, 194
  in germinated seeds, 246-7
  in sprouted wheat, 246
  and pre-menstrual and menopause tension, 296
  sources of, 241
  and stress, 312
vitamin D, 131-2
  dangers of synthetic, 88
  dangers of high dosage, 131
  and male potency, 304
  sources of, 242
vitamin E, 23
  cost, 145
  loss in refining oil, 169
  and cholesterol, 169
  and menopause, 296, 298
  and pre-menstrual and menopause tension, 296
  lack of and brain damage, 169
  in sprouts, 247
  and stress, 313
  in wheat germ, 60
vitamin F
  and calcium assimilation, 154
  and prostate, 301
  sources of, 242
vitamin K, 242
Voisin, André, 222
Voit, 203
Wachtel, Curt S., 335-6
Wallace, J. Sim, 191
Walsh, Michael J., 141
water pollution, 104-9
  detergents in, 106
  industrial wastes in, 105
  radioactive wastes in, 107
  radioactive wastes in ocean, 107
  raw sewage in, 104, 105
  Taft Engineering Center, 105
  water softeners in, 106
waterless cooking of vegetables, 244-5
West Indies food, 58
West, Mae, and exercise, 258
wheat germ, 59-60, 175-6
  U.S.D.A. sanction, 175
  pre-menstrual and menopause tension, 296
  wheat germ oil, 175-6
  male potency, 302-6
White's vitamin A and D ointment, 284
wholegrain, commercial, 64-5
  fumigation of, 65
  danger of, 65
whole wheat rolls, recipe, 252
  bread, recipes, 249-52
Wickenden, Leonard, 224
widows, 337
Wild Animals, Inc., 27
Wiley, Harvey S., 87
will to live, 332-44
Williams, Roger, 197
  and pantothenic acid, 187
  mental illness, 146-7
  individual differences, 197-9
  refining of foods, 231-2
  sub-clinical deficiencies, 232-3
  sugar and alcohol, 76, 77
 vitamins, 128-31
  vitamins, different individuals, 136
  vitamins, high dosage danger, 131

vitamins (*Cont.*)
  vitamins and multiple deficiencies, 137-8
Winslow, Thyra Samter, 275
Wolf, Alexander, 303
Woltereck, Heinz, 38, 40, 342-3
wonder foods, 170-97, 227
Wood, H. Curtis, 138
wrinkles, how to erase, 265
Wulzen and Bahrs, 172
Wulzen factor, 172

yeast, brewers, 177-81
yoga, 257
yogurt, 172-4
  recipe for making, 245-6
Young, Richard K., 329

New Reference Books In Inexpensive Editions

AUTHORITATIVE!!!COMPLETE!!! INEXPENSIVE

IN CASE OF EMERGENCY

by Bry Benjamin, M.D. & Annette Frances Benjamin
X-1592/60¢.

The answers to almost every conceivable home medical emergency in a new first aid book. "Belongs in every household" *(Ladies' Home Journal).*

HANDWRITING ANALYSIS

by Dorothy Sara X-1643/60¢.

America's most popular handwriting book now in its 4th big printing.

TOP SECRETS OF FIGURE BEAUTY

by Evalyn Kaufman X-1609/60¢.

Based on the 10-minute-a-day spot control method of figure improvement.

HOW TO BE YOUR OWN DECORATOR

by Betty Pepis NRL-15/95¢.

The definitive book about interior decorating and home planning. Eight pages of full color plus actual paint samples.

THE STORY OF AMERICAN FURNITURE

by Thomas H. Ormsbee N-1464/95¢.

Over 100 illustrations, the classic guide to antique American furniture by a world-renowned authority.

250 HAIRSTYLES

by Susan Bell X-1562/60¢.

Completely illustrated guide to today's most popular hairstyles for teenagers, young marrieds, careerists and housewives.

Note: Pyramid pays postage on orders for 4 books or more. On orders for less than 4 books, add 10¢ per book for postage and handling.

— WHEREVER PAPERBACKS ARE SOLD OR USE THIS COUPON —

PYRAMID BOOKS
Dept. K-198, 444 Madison Avenue, New York, N. Y. 10022

Please send me the REFERENCE BOOKS circled below. I enclose $________

X-1592 X-1643 X-1609 NRL-15 N-1464 X-1562

Name____

Street_______________________________________

City________________State____________Zip________

feel
years
younger!

"WONDER FOODS" THAT CUT 15 YEARS FROM YOUR AGE—THE POWER OF VITAMINS—NATURAL DIET FOR HEALTH AND REDUCING—WHY YOU GET OLD . . . AND HOW NOT TO—BALDNESS CAN BE STOPPED—NATURE'S "FACE LIFT"—POISONS IN FOOD, AIR, AND WATER—MENOPAUSE PROBLEMS CAN BE SOLVED—TRAIN YOUR MIND FOR HEALTH AND SERENITY—THE POWER OF PRAYER

Authoritative, scientific information on all these points – and hundreds of others – make STAY YOUNG LONGER one of the most important books you will ever read. Nutrition, body training, and exploration of the powers of the mind combine in a unique program that can change YOUR life—starting today!

A PYRAMID BOOK **95¢** Cover: RICHARD SMITH Printed in U.S.A.